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Economic Brief with Respect to the  
Proposed Milk Marketing Agreement and Proposed Order  
for the  
Fort Wayne, Indiana, Marketing Area

by

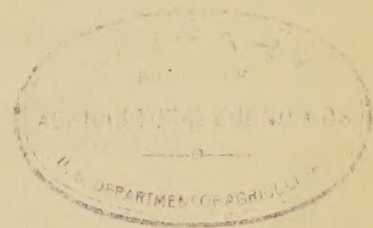
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### Introduction.

This proposed marketing agreement and proposed order relative to the regulating of the handling of milk in the Fort Wayne, Indiana, Marketing Area has for its purpose the increasing of returns to producers in accordance with the policy of the Agricultural Adjustment Act, as amended. It is thought that this increase to the producers can be obtained mainly through the more efficient and stabilized marketing conditions created by the provisions of this proposed marketing agreement and proposed order. The main provisions are as follows:

1. The classification of milk into four types of uses.
2. The fixing of the minimum price for one class which handlers shall pay to producers, and the method of fixing the minimum price for the other three classes.
3. The equitable apportionment of the proceeds of milk to all producers by the pooling of all proceeds of milk from all handlers, and the payment to producers according to the quantity of milk each delivers until January 1, 1937, and from that date on according to a base rating plan.

This economic brief is a compilation of all the information that the Secretary now has available with reference to this market. At this hearing the obtaining of additional information will be of value in appraising the proposed program.

### PART I

#### The Economic Emergency With Respect to Milk Producers in the States Which Supply Milk to the Fort Wayne, Indiana, Marketing Area.

The milk supply of the Fort Wayne Marketing Area is produced in two States, Indiana and Ohio. 1/

From 1929 to 1933, the prices received by farmers in these States for milk sold wholesale declined steadily. (See Table 1.) In 1933, the average farm price of milk sold wholesale was 48.0 percent and 54.0 percent lower than in 1929 in Indiana and Ohio, respectively. While prices received by farmers for milk sold at wholesale in these States declined

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1/ For details with respect to the proportion of the total supply of milk for Fort Wayne which is furnished by each State, see Part IV.



Table 1. Index of prices paid by farmers for commodities bought and wholesale prices received by producers for all milk per hundredweight in the United States, Indiana and Ohio since 1929 and percent change since 1929, by years 1929-1935, by months, 1936.

Year and month	United States index of prices paid by farmers for commodities bought (Aug. 1909-July 1914)				United States		Indiana		Ohio	
	Percent	Farm price of milk	Percent change since 1929	Dollars	Percent	Farm price of milk	Percent change since 1929	Dollars	Percent change since 1929	Percent
1929	153	2.56	-	2.54	-	2.52	-	2.52	-	-
1930	145	2.30	-10.2	2.23	-12.2	2.19	-12.2	2.19	-13.1	-13.1
1931	124	1.77	-30.9	1.73	-31.9	1.62	-31.9	1.62	-35.7	-35.7
1932	107	1.32	-48.4	1.40	-44.9	1.13	-44.9	1.13	-55.2	-55.2
1933	109	1.30	-49.2	1.32	-48.0	1.16	-48.0	1.16	-54.0	-54.0
1934	123	1.53	-40.2	1.48	-41.7	1.50	-41.7	1.50	-40.5	-40.5
1935	125	1.71	-33.2	1.58	-37.8	1.64	-37.8	1.64	-34.9	-34.9
1936										
January	122	1.95	-23.8	1.80	-29.1	1.80	-29.1	1.80	-28.6	-28.6
February	122	1.95	-23.8	1.80	-29.1	1.95	-29.1	1.95	-22.6	-22.6
March	121	1.83	-28.5	1.80	-29.1	1.85	-29.1	1.85	-26.6	-26.6
April	121	1.74	-32.0	1.75	-31.1	1.80	-31.1	1.80	-28.6	-28.6
May	121	1.66	-35.2	1.70	-33.1	1.70	-33.1	1.70	-32.5	-32.5
June	120	1.64	-35.9	1.60	-37.0	1.70	-37.0	1.70	-32.5	-32.5
July	123	1.79	-30.1	1.80	-29.1	1.90	-29.1	1.90	-24.6	-24.6

Compiled from reports of the Bureau of Agricultural Economics  
Division of Crop and Livestock Estimates.



in this way, the prices paid by farmers for commodities bought declined to a much lesser extent, the index of such prices dropping from 153 (1910-1914 = 100) in 1929 to 109.0 in 1933, a decline of only 28.8 percent. (See Table 1.) Thus there was a marked decline in the purchasing power of milk sold wholesale by farmers during the period 1929 to 1933, since the farm price of milk sold wholesale declined more rapidly and to a greater extent than the prices paid by farmers for commodities bought.

Between 1929 and 1933, the gross income from milk produced on farms <sup>2/</sup> dropped 45.6 percent in the United States, 48.4 percent in Ohio, and 46.8 percent in Indiana. (See Table 2.)

Cash income from dairy products sold from farms <sup>3/</sup> during this same period dropped 46.5 percent in the United States, 49.8 percent in Ohio, and 48.8 percent in Indiana (See Table 3.)

The foregoing facts and considerations demonstrate conclusively that, in the two States which supply milk to the Fort Wayne, Indiana, market, during the period 1929 to 1933, there was a marked decline in (1) the prices received by producers for milk sold wholesale, (2) the purchasing power of such milk, (3) the gross income from milk produced on farms, and (4) the cash income from dairy products sold from farms.

The condition of milk producers in the United States and in these two States improved somewhat in 1934 and 1936. However, in 1934 cash income from milk produced on farms in the United States was still 39.7 percent below that of 1929, while in Indiana and Ohio it was 42.4 percent and 38.6 percent, respectively, below the 1929 level. The farm prices of milk sold wholesale in 1935 in Indiana and Ohio averaged only \$1.58 and \$1.64 per hundredweight in 1935, which are still much below those received in 1929. (See Table 1.)

## PART II.

### The Importance of Dairy Farming as an Agricultural Enterprise in the United States and in the States Supplying Milk to the Fort Wayne, Indiana, Marketing Area.

Some indication of the importance of milk production as an agricultural enterprise in the United States and in the two States, Indiana and Ohio, which supply milk to the Fort Wayne Marketing Area, is given in Table 4. (See also Part VIII.)

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<sup>2/</sup> Calculated by multiplying the estimated quantity of milk produced less milk fed to calves by the average value per 100 pounds. It includes the value of milk, cream, and butter consumed in the household on the farms where produced.

<sup>3/</sup> Computed by adding together the estimates of receipts from sales of milk, cream, butterfat, and butter. The income from sales of dairy cattle and calves is not included.



Table 2. Gross Income from Milk produced on Farms in the United States and in specified States supplying milk to the Fort Wayne Marketing Area, and the percentage decline from 1929 in such gross income, 1929 - 1934.

Year	United States			Indiana		Ohio	
	Gross Income from Milk Production	Percent decline from 1929	Gross Income from Milk Production	Percent decline from 1929	Gross Income from Milk Production	Percent decline from 1929	
	1,000 Dollars		1,000 Dollars		1,000 Dollars		
1929	2,322,553	-	68,110	-	102,101	-	
1930	2,030,853	12.6	58,113	14.7	87,136	14.7	
1931	1,614,394	30.5	46,142	32.3	67,864	33.5	
1932	1,260,424	45.7	36,396	46.6	52,206	48.9	
1933	1,262,554	45.6	36,222	46.8	52,734	48.4	
1934	1,421,253	38.8	40,446	40.6	64,395	36.9	

Compiled from reports of the Bureau of Agricultural Economics,  
Division of Crop and Livestock Estimates.



Table 3. Cash Income from Dairy Products sold from Farms in the United States and specified States supplying milk to the Fort Wayne Marketing Area, and percentage change from 1929 in such cash income, 1929 - 1934.

Year	United States		Indiana		Ohio	
	Cash Income from Dairy Products sold from Farms	Percent decline from 1929	Cash Income from Dairy Products sold from Farms	Percent decline from 1929	Cash Income from Dairy Products sold from Farms	Percent decline from 1929
	<u>1,000 Dollars</u>		<u>1,000 Dollars</u>		<u>1,000 Dollars</u>	
1929	1,847,235	-	57,756	-	85,475	-
1930	1,615,363	12.6	49,074	15.0	73,017	14.6
1931	1,278,531	30.8	39,009	32.5	56,490	33.9
1932	985,099	46.7	30,200	47.7	42,569	50.2
1933 <u>1/</u>	988,880	46.5	29,580	48.8	42,883	49.8
1934 <u>1/</u>	1,114,016	39.7	33,262	42.4	52,501	38.6

Compiled from reports of the Bureau of Agricultural Economics,  
Division of Crop and Livestock Estimates.

1/ Includes benefit payments and government purchases.



Table 4. Cash Income from all Farm Production and percentage Cash Income from Dairy Products was of Cash Income from all Farm Production, United States and specified States supplying milk to the Fort Wayne Marketing Area, 1929 - 1934.

Year	United States			Indiana			Ohio		
	Cash Income from Total Farm Production	Percent which Cash Income from Dairy Products was of total cash income from farm production		Cash Income from Total Farm Production	Percent which Cash Income from Dairy Products was of total cash income from farm production		Cash Income from Total Farm Production	Percent which Cash Income from Dairy Products was of total cash income from farm production	
	1,000 Dollars	Percent	1,000 Dollars	Percent	1,000 Dollars	Percent	1,000 Dollars	Percent	1,000 Dollars
1929	10,284,479	18.0	300,277	19.2	343,021	24.9	278,217	26.2	227,119
1930	7,987,606	20.2	238,082	20.6	278,217	24.9	227,119	27.1	157,138
1931	5,795,148	22.1	181,003	21.6	187,902	22.8	230,586	22.8	
1932	4,368,296	22.6	134,448	22.5					
1933 <sup>1/</sup>	5,402,094	18.3	152,248	19.4					
1934 <sup>1/</sup>	6,261,123	17.8	204,276	16.3					

Compiled from reports of the Bureau of Agricultural Economics,  
Division of Crop and Livestock Estimates.

<sup>1/</sup> Includes benefit payments and government purchases.



This table shows that the sale of dairy products supplied 18.0 percent of farmers' cash income in the United States in 1929, 22.6 percent in 1932, and 17.8 percent in 1934.

In Indiana, the sales of dairy products supplied 19.2 percent of farmers' cash income in 1929, 22.5 percent in 1932, and 16.3 percent in 1934. In Ohio, the sales of dairy products supplied 24.9 percent of farmers' cash income in 1929, 27.1 percent in 1932, and 22.8 percent in 1934. Regional differences in the importance of dairying in the area about Fort Wayne are indicated by the fact that the percent of the farms of dairy type <sup>4/</sup> varies from 4.6 percent in Van Wert County, Ohio, to as high as 12.6 percent in Adams County, Indiana. Table 5 shows this figure for each of the six Indiana counties and the Ohio counties which supply milk to the Fort Wayne, Indiana, market. On an average, nearly 10 percent of the farms have over 40 percent of their income from dairy products, including the sale of dairy cows and heifers.

The foregoing facts and considerations demonstrate that dairy farming is an important agricultural enterprise in Indiana and Ohio, and that activity pointed toward the enhancement of prices to Indiana and Ohio producers who supply milk to Fort Wayne is warranted and necessary to effectuate the policy of Congress as stated in the Agricultural Adjustment Act.

### PART III.

#### Comparison of the Prices Specified in the Proposed Marketing Agreement and Proposed Order for the Fort Wayne, Indiana, Marketing Area with Parity Prices for Milk in the Fort Wayne, Indiana, Marketing Area.

Section 2 of the Agricultural Adjustment Act, as amended, states that it is the declared policy of Congress "(1) Through the exercise of the powers conferred upon the Secretary of Agriculture under this title, to establish and maintain such balance between the production and consumption of agricultural commodities, and such marketing conditions therefor, as will re-establish prices to farmers at a level that will give agricultural commodities a purchasing power with respect to articles that farmers buy, equivalent to the purchasing power of agricultural commodities in the base period; and, in the case of all commodities for which the base period is the pre-war period, August 1909 to July 1914, will also reflect current interest payments per acre on farm indebtedness secured by real estate and tax payments

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<sup>4/</sup> Farms are classified into types by the Census of Agriculture for 1930 on the basis of the source of their income from farm products sold, traded, or used by the operator's family. In this classification farms must have over 40 percent of their income from milk, cream, butterfat, butter and dairy cows, and calves, to be classified as dairy type.

Table 5 -- FORT WAYNE, INDIANA: Type and size of farm, size of herd and type of cattle enterprise in selected counties which include the Fort Wayne Milk Supply Area, 1929.

State and County	Percent of farms with over 40% income from dairy	Average Size of Farm	Average Size of Dairy Type Farm	Number of Milk Cows		Total No. of Cattle	Percent Milk Cows are of all Cattle	Percent milk cows of dual-purpose or beef-breeding are of all cows milked	
	Percent	Acres	Acres	Per Farm reporting Milk Cows	Per Dairy Type Farm	Per Sq. Mile	Percent	All Farms	Dairy Farms
INDIANA									
Adams	12.6	97.2	96	5.1	7.8	60.9	48.1	12.7	5.5
Allen	10.3	101.1	107	4.6	7.5	44.7	47.9	17.3	11.1
De Kalb	9.5	94.6	94	4.5	7.2	46.5	49.9	15.5	7.6
Noble	9.2	106.4	109	4.8	8.5	50.0	45.8	9.8	4.7
Wells	12.1	96.8	96	4.5	7.1	52.2	49.6	7.1	2.7
Whitley	5.7	98.9	101	4.4	8.6	53.0	45.2	11.5	3.1
State	9.5	108.4	109	4.2	8.3	40.1	45.8	11.5	4.8
OHIO									
Defiance	11.0	113.7	109	4.2	6.9	39.8	49.4	3.7	1.3
Paulding	6.0	131.4	107	3.9	7.8	29.8	51.9	9.1	3.0
Van Wert	4.6	101.3	72	3.8	6.9	43.5	48.0	15.2	16.2
State	13.6	98.1	106	4.5	8.8	43.5	47.8	9.3	4.0

Compiled from United States Census of Agriculture, 1930. Vol. I, II, Part I, III, Table IX, Part I, Table I & IV.



per acre on farm real estate, as contrasted with such interest payments and tax payments during the base period. The base period in the case of all agricultural commodities, except tobacco and potatoes, shall be the pre-war period, August 1909 to July 1914. In the case of tobacco and potatoes, the base period shall be the post war period, August 1919 to July 1929 ..."

In section 8e of the Agricultural Adjustment Act, as amended, it is provided that "In connection with the making of any marketing agreement or the issuance of any order, if the Secretary finds and proclaims that, as to any commodity specified in such marketing agreement or order, the purchasing powers during the base period specified for such commodity in section 2 of this Title cannot be satisfactorily determined from available statistics of the Department of Agriculture, the base period, for the purposes of such marketing agreement or order, shall be the post-war period, August 1919 to July 1929, or all that portion thereof for which the Secretary finds and proclaims that the purchasing power of such commodity can be satisfactorily determined from available statistics of the Department of Agriculture."

In the case of milk produced for sale in the Fort Wayne Marketing Area, available statistics in the United States Department of Agriculture, with respect to the August 1909 to July 1914 base period, are not available for the proper determination of an August 1909 to July 1914 base period price for milk. Parity prices for milk sold by producers to handlers in the Fort Wayne Marketing Area have been determined, therefore, from available statistics in the Department of Agriculture, with respect to the period August 1919 to July 1929, inclusive. As of July 1936, the latest date for which figures are available, the parity price f.o.b. city for Class I milk containing 4.0 percent of butterfat as determined for the Fort Wayne Marketing Area was \$2.18 per hundredweight. (See Table 6.)

The price proposed for the market is \$2.25 for Class I milk. The index of prices paid by farmers showed a sharp increase in July and it is expected that this increase will continue in August. In addition, drought conditions have created a severe economic emergency in the area and while the emergency exists it appears that farmers must receive a higher price in order to induce them to maintain an adequate supply. Furthermore, the Class I price in this market has averaged below the parity price throughout the year 1935 and thus far in the year 1936, so that it appears that even with a price above the computed parity for the emergency period the Secretary will not have exceeded the standard set by Congress.

#### PART IV

##### Character of the Commerce in Milk in the Fort Wayne Indiana, Marketing Area

The Fort Wayne Marketing Area, as defined by the proposed marketing agreement and proposed order, is as follows: "... the territory within the corporate limits of Fort Wayne, Indiana, and the territory within four miles of the corporate limits of Fort Wayne, Indiana." The population of Fort Wayne, Indiana, Marketing Area, according to the 1930 Census was approximately 125,000.

Table 6 - FORT WAYNE, INDIANA: Index of prices paid by farmers, price per hundredweight of 4% Class I milk, and parity prices, average August 1926-July 1929, by years 1930-1935, and by months 1936.

Year and Month	Index of prices paid by farmers for commodities bought	Price per cwt. of 4% Class I milk f.o.b. city	
		Prices paid	Parity prices
August 1926-July 1929	<u>Percent</u> 100.0	<u>Dollars</u> 2.73 1/	<u>Dollars</u>
1930	94.2	2.46 1/	2.57
1931	80.6	1.92 1/	2.20
1932	69.5	1.47 1/	1.90
1933	70.8	1.58 1/	1.93
1934	79.9	1.78 2/	2.18
1935	81.2	1.95	2.22
1936			
January	79.3	2.00	2.16
February	79.3	2.00	2.16
March	78.6	2.00	2.15
April	78.6	1.92	2.15
May	78.6	2.00	2.15
June	78.0	2.00	2.13
July	79.9	2.00	2.18
August			
September			
October			
November			
December			

1/ Calculated by relating the estimated prices for Class II and Class IV milk to the estimated percentage in each class - Class I, 50%, Class II, 12% and Class IV 38% - and assuming Class I prices to be the amount necessary to give the average prices paid by two Fort Wayne distributors.

2/ License price quoted from July 1934 on.



The Fort Wayne, Indiana, Marketing Area is situated near the boundary line between the States of Indiana and Ohio and milk moves in the current of interstate commerce into the marketing area. On September 1, 1935, there were approximately 95 producers in Ohio delivering milk to the Fort Wayne Marketing Area.

During the period July 1934 to June 1935, inclusive, 32,145,497 pounds of milk were purchased by handlers in the Fort Wayne Marketing Area. Of this amount 2,415,736 pounds or 7.5 percent was produced in the State of Ohio and 29,729,761 pounds or 92.5 percent was produced in the State of Indiana. (See Table 7.)

In June, 1935, there were 38 handlers and producer-handlers operating in the Fort Wayne Marketing Area. Many of these handlers are not equipped to handle surplus milk and during periods of flush production have requested their producers to keep their surplus milk at home. During periods of low production, when the fluid milk and cream requirements of these handlers were not met by their producers, they have had to supplement their supply with some milk purchased from a handler who purchases milk from producers in Ohio and who carries a large amount of surplus milk at all times.

These inter-handler sales vary with the seasonal production of milk in the area. During the flush season, the inter-handler sales are low and during the season of low production the inter-handler sales are relatively high. During the period July 1934 to June 1935, such sales in the marketing area ranged from less than 1 percent in June 1935 to approximately 19 percent in April 1935 of the total milk purchased from producers by any handler, who had purchased milk in Ohio.

Thus through these inter-handler transactions many of the handlers in the area handle milk that moves in the current of interstate commerce. In April 1935, 19 handlers or 50 percent of the handlers operating in the Fort Wayne Marketing Area purchased milk from a handler who had purchased part of his milk supply from producers in Ohio. (See Table 8.)

The Bureau of Railway Economics reported in 1933 that 27,685 pounds of milk and cream were shipped into the Fort Wayne, Indiana, market in interstate commerce. The milk and cream originated in the three states of Illinois, Ohio and Michigan. Evaporated or condensed milk, butter and cheese were shipped into the area in large quantities from states other than Indiana. In 1933, the manufactured dairy products shipped into the Fort Wayne Marketing Area originated in ten states. (See Table 9.)

Table 7: Total volume of milk delivered by members and non-members of the Wayne Cooperative Milk Producers, Inc., volume of milk purchased by handlers from producers in Indiana and Ohio and the percentage milk purchased in Ohio is of the total milk purchased.

Year and month	Total milk purchased by handlers from producers	Milk purchased by handlers from producers in Indiana	Milk purchased by handlers from producers in Ohio	Percent milk purchased from producers in Ohio is to total milk purchased
	Pounds	Pounds	Pounds	Percent
1934				
July	3,013,432	2,817,728	195,704	6.495
Aug.	3,142,425	2,932,183	210,242	6.690
Sept.	3,038,005	2,832,881	205,124	6.752
Oct.	2,913,359	2,718,078	195,281	6.703
Nov.	2,451,541	2,288,581	162,960	6.647
Dec.	2,267,796	2,101,747	166,049	7.322
1935				
Jan.	2,149,793	1,974,175	175,618	8.169
Feb.	1,980,469	1,807,067	173,402	8.756
Mar.	2,137,449	1,945,032	192,417	9.002
Apr.	2,346,240	2,156,617	199,623	8.508
May	3,324,528	2,059,939	264,589	7.959
June	3,380,460	2,105,733	274,727	8.127
Total	32,145,497	29,729,761	2,415,736	7.515 <u>1/</u>

Compiled from the annual report of the Market Administrator.

1/ Monthly average



Table 8: Number of handlers reporting, number of handlers purchasing milk from other handlers, and the volume of inter-handler sales in the Fort Wayne Marketing Area.

Year and Month	Number handlers reporting	Number of handlers purchasing milk from other handlers	Volume of inter-handler sales <u>Pounds</u>
1934			
July	33	6	10,577
August	33	4	9,901
September	34	3	8,019
October	33	5	13,525
November	33	17	105,687
December	30	12	80,982
1935			
January	30	17	86,009
February	30	16	103,523
March	26	17	171,555
April	36	19	183,549
May	37	9	70,315
June	33	2	13,507
Total			857,149

Compiled from reports of the Market Administrator.



Table 9 - FORT WAYNE, INDIANA: Rail shipments of dairy products to and from Fort Wayne, Indiana, by states of origin and destination, 1933.

State	Shipments to the Milk Shed				Shipments from the Milk Shed			
	Cheese	Butter	Evaporated or Condensed Milk	Cream and Fluid Milk	Cheese	Butter	Evaporated or Condensed Milk	Cream and Fluid Milk
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
District of Columbia	-	-	-	-	-	89,630	-	-
Illinois	295	194,710	214,290	22,416	204	-	-	170
Iowa	-	21,000	-	-	-	-	-	-
Kansas	-	22,784	-	-	-	-	-	-
Massachusetts	-	-	-	-	-	992,199	-	-
Michigan	758	-	567,370	719	-	-	692	-
Minnesota	-	21,000	-	-	-	-	-	-
Missouri	-	41,760	-	-	-	-	-	-
Nebraska	-	83,520	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-
New York	578	-	-	-	-	156,273	36,496	1,672
Ohio	1,968	676,894	2,085,729	4,550	-	552,496	-	-
Pennsylvania	-	-	-	-	64	335,890	-	406,878
West Virginia	-	-	-	-	-	2,007,716	386,585	1,672
Wisconsin	21,978	21,000	358,682	-	-	-	610	-
Total	25,577	1,082,668	3,226,267	27,685	268	4,134,204	424,383	410,392

Compiled from reports of the Bureau of Railway Economics.



Shipments of milk and dairy products from the Fort Wayne Area in 1933 were also reported by the Bureau of Railway Economics. They amounted to 410,392 pounds of milk and cream, 424,383 pounds of evaporated or condensed milk and 4,134,204 pounds of butter.

The milk used for fluid purposes in the Marketing Area is produced in the counties of Allen, Adams, DeKalb, Noble, Whitney and Wells, in Indiana, and the counties of Paulding, and Van Wert, in Ohio. All of the cream used for consumption as fluid cream is also produced in these same counties.

Section 8c (1) of the Agricultural Adjustment Act, as amended, provides that: "The Secretary of Agriculture shall, subject to the provisions of this section, issue, and from time to time amend, orders applicable to processors, associations of producers, and others engaged in the handling of any agricultural commodity or product thereof specified in subsection (2) of this section. Such persons are referred to in this title as 'handlers'. Such orders shall regulate, in the manner hereinafter in this section provided, only such handling of such agricultural commodity, or product thereof, as is in the current of interstate or foreign commerce, or which directly burdens, obstructs, or affects, interstate or foreign commerce in such commodity or product thereof."

Section 8c (5) (A) of the Agricultural Adjustment Act, as amended, states that: "In the case of milk and its products, orders issued pursuant to this section shall contain one or more of the following terms and conditions, and (except as provided in subsection (7)) no others:

"(A) Classifying milk in accordance with the form in which, for the purpose for which, it is used, and fixing, or providing a method for fixing, minimum prices for each such use classification which all handlers shall pay, and the time when payments shall be made, for milk purchased from producers or associations of producers. Such prices shall be uniform as to all handlers, subject only to adjustments for (1) volume, market, and production differentials customarily applied by the handlers subject to such order, (2) the grade or quality of the milk purchased, and (3) the locations at which delivery of such milk, or any use classification thereof, is made to such handlers."

As we pointed out before, much of the milk in the Fort Wayne, Indiana, Marketing Area either moves across State lines as milk or cream, or becomes mixed with milk which has crossed State lines. The question as to the degree to which the regulation of commerce in milk as specified

in the proposed marketing agreement and proposed order must be extended to the handling of milk that does not move across State lines, or does not become mingled with the milk which has moved across State lines, obviously depends upon the extent to which the handling of such milk burdens, obstructs, or affects the interstate commerce in milk in the Fort Wayne, Indiana, Marketing Area.

The proposed marketing agreement and proposed order fixes the prices which handlers shall pay for milk purchased from producers or associations of producers, and the prices fixed are probably higher than those that would prevail if there were no Federal license in effect and if there were no marketing agreement or order in effect. If prices were fixed with respect to that milk which moves across State lines or becomes mingled with milk which has moved across State lines, and were not fixed for milk that did not move across State lines or become mingled therewith, it would be impossible for any marketing agreement and order to raise prices to producers and to effectuate the policy of Congress as stated in the Agricultural Adjustment Act.

The reason for this is that, if prices are fixed by the marketing agreement and order for some milk above what would be the case otherwise, it would be to the interest of handlers to change their sources of supply in order to procure milk with respect to which prices were not fixed, i.e., milk not moving across State lines or becoming mingled therewith, which would probably sell at prices lower than the level of prices set in the proposed marketing agreement and proposed order. This is especially so under the plan set up in the proposed marketing agreement and proposed order in which some of the surplus is spread over all producers. Handlers buying milk in Indiana only could buy milk at a price which handlers complying with the marketing agreement and order would be paying their producers, which would be a combination of fluid price and excess price, and possibly at a somewhat lower price, but sell all their milk as fluid milk. In this way, they would receive some milk at excess prices even though they sold it as fluid milk at fluid milk prices. Thus, not only would a large volume of milk moving across State lines or becoming mingled therewith be sold at excess prices, but the prices received by farmers in other States would be lowered and some of them would probably be left without any market for their milk.

It is obvious that the competition between milk from different sources would bring about the results set forth in the preceding paragraph. Furthermore, handlers who handle milk in the Fort Wayne, Indiana, Marketing Area have not priced milk differently to different producers in the past in accordance with the State of origin of the milk.

The foregoing facts and considerations demonstrate conclusively that much of the milk handled in the Fort Wayne, Indiana, Marketing Area, especially during certain seasons of the year, actually moves across



State lines or is directly mingled with milk which has moved across State lines, and that, in order to regulate the handling of such milk so as to effectuate the policy of Congress as stated in the Agricultural Adjustment Act, the handling of all other milk which is handled in the marketing area must also be regulated in the same manner.

#### PART V.

##### The Classification and Prices of Milk Provided by the Proposed Marketing Agreement and Proposed Order.

A general discussion of the price structure for milk is set forth in Technical Paper No. 1, published by the Dairy Section of the Agricultural Adjustment Administration. <sup>5/</sup> In this paper it is shown that the classified price plan of selling milk to distributors develops from the competition among distributors to secure an even supply of milk, or, rather, a supply of milk that is closely related to such distributors' requirements for milk for their fluid milk trade. This paper also shows how differences in (1) costs of transporting a unit of milk in fluid form and the product equivalent of a unit of fluid milk, and (2) varying sanitation requirements applicable to milk produced for fluid use and milk produced for use in manufactured dairy products, affect the differential between the price of milk used for different purposes.

##### A. Provisions of the proposed marketing agreement and proposed order.

Four classes of milk are specified in the proposed marketing agreement and proposed order, namely:

Class I - all milk sold or distributed as milk and not specifically accounted for as Class II, Class III or Class IV milk.

Class II - all milk used to produce cream for consumption as cream.

Class III - all milk sold as flavored milk or milk drinks, buttermilk, cottage cheese, condensed milk, evaporated milk, powdered milk and cream for the manufacture of ice cream.

Class IV - all milk specifically accounted for (a) as being sold, distributed or disposed of other than as Class I, Class II, or Class III milk and (b) as actual plant shrinkage within reasonable limits.

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<sup>5/</sup> E. W. Gaumnitz and O. M. Reed, The Price Structure for Milk, Technical Paper No. 1, Dairy Section, A.A.A., U. S. D. A. (Appendix A.)

The area supplying milk to the Fort Wayne, Indiana, Marketing Area is a surplus area, i.e., more than enough milk is produced in the area than is necessary to meet the demand for fluid milk and cream in the marketing area. Hence, in order that the market will have enough milk to take care of the daily fluctuations in the need for milk and cream, some surplus milk must be handled and such surplus is classified according to the use made of it by handlers.

The classification and prices provided in the proposed marketing agreement and proposed order relative to milk produced for sale in the marketing area appear reasonable in light of the facts that are available relative to supply and demand conditions and to the sales and uses of milk in the Fort Wayne, Indiana, Marketing Area. Such facts are set forth in detail in the following discussion.

B. Use classification.

Prior to the effective date of the federal milk license for the Fort Wayne milk market on July 1, 1934, almost all the producers were paid a flat price for all milk. The other producers were paid as follows:

Up to 1931, paid a flat price for all milk.

January 1932 - May 1932, paid on a base and surplus  
plan            61 percent base  
                 39 percent surplus.

May 15, 1932 - January 15, 1934, paid a flat price  
for all milk.

January 15, 1934 - July 1, 1934, paid on a classified  
price plan as follows:

Class I Milk - 52 percent at approximately \$1.75 per cwt.  
Class II Milk - 16 percent "            "            1.25 per cwt.  
Class III Milk - 32 "            " butterfat prices.

Federal license No. 64 effective July 1, 1934, provided that handlers in the Fort Wayne Sales Area pay for milk according to use with three classes established. Class I milk was defined as all milk used by handlers as whole milk for consumption as milk. Class II milk was all milk used to produce cream for consumption as cream. Class III milk was all milk used by handlers in excess of Class I and Class II.



The license had not been in effect for long before it was realized that three classes of milk were not adequate for the classifying of milk in the area. As shown in Figure 1, there are several condenseries, creameries and cheese factories in the area which represent an alternative market for the milk of producers supplying the Fort Wayne Marketing Area. At certain times in the year, handlers sell milk in these outlets and it was felt by the producers that such a use of the milk was entitled to a higher classification than milk used for the manufacture of butter. At that time it was also felt that because these outlets provided at all times an alternative outlet for surplus milk that no other class of the milk was necessary. However, because handlers had always used part of their supply for the manufacture of butter and had so organized and operated on that basis a fourth class of milk was provided for classifying milk used for the manufacture of butter.

Operation under the amended license disclosed the fact that the market was agreed that handlers should not have their wastage and shrinkage classified higher than the class for butter, and on August 16, 1935 license No. 64 was further amended placing the milk sold by handlers as milk or cream to condenseries, cheese factories, and ice cream factories, or used by handlers to produce ice cream or ice cream mix in Class III. Class IV included all milk used by handlers in excess of Class I, Class II and Class III. This classification of milk was evidently agreeable to handlers and producers in the market and has remained in effect from August 16, 1935 up to the present time.

The same classification as is now provided in the Federal License effective in this area is provided in the proposed marketing agreement and proposed order, with the minor change that all milk not specifically accounted for above a reasonable allowance for shrinkage shall be considered Class I. Such a provision is to insure that handlers who do not keep adequate records are paying the full price for their milk as the handlers who do keep good records. However, it is realized that milk does have some shrinkage for plant loss of which no adequate record can be obtained. A reasonable amount of such shrinkage or plant loss is allowed to be classified as Class IV.

During the year 1935 the percentage of all milk reported used as Class I varied from 69.7 percent in March to 49.2 percent in June. The percentage of all milk used as Class II varied from 10.1 in July to 14.4 in December. The percentage of all milk used as Class III and Class IV combined varied from 40.5 in June to 16.9 in March. (See Table 10.)

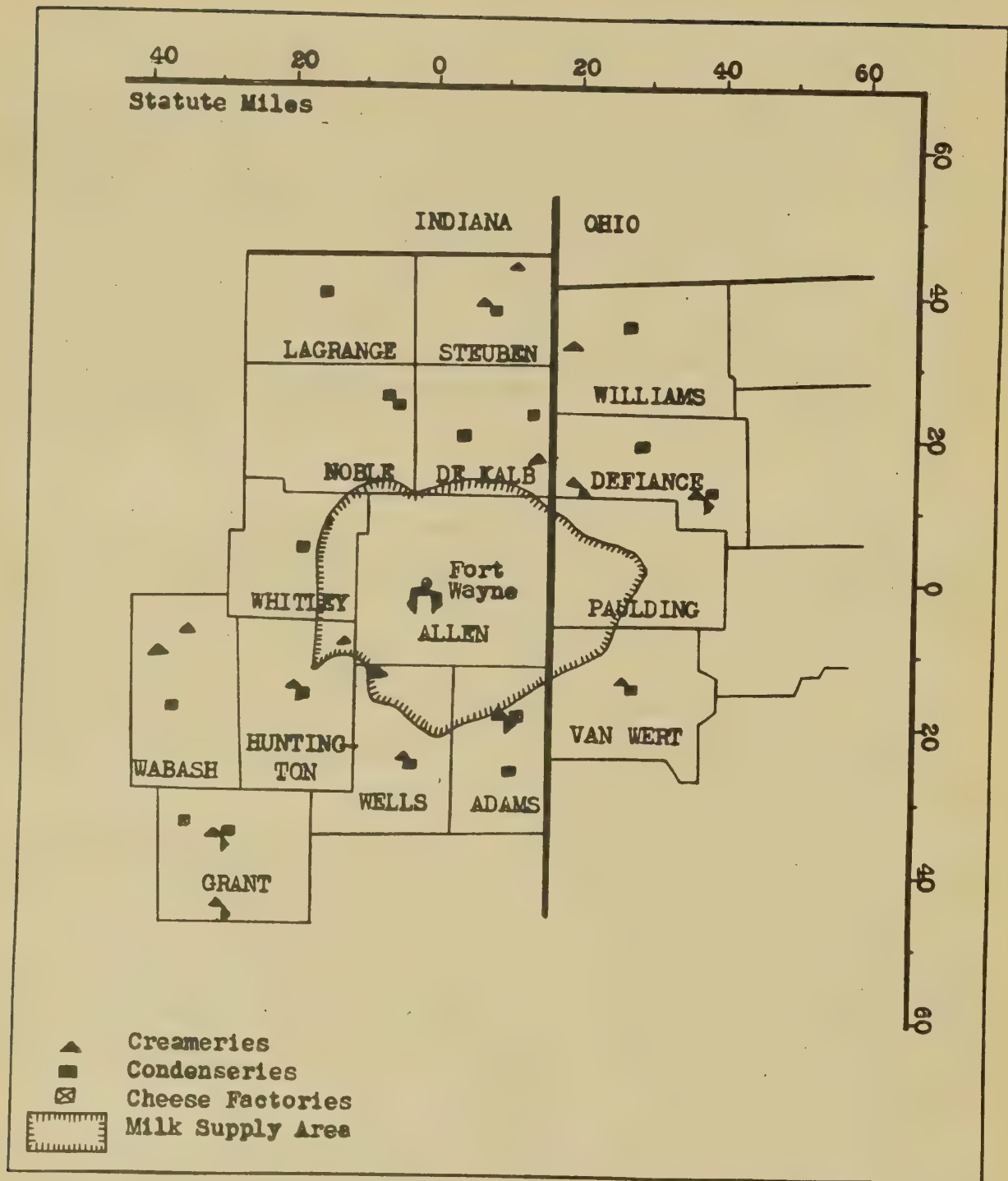


FIGURE 1 :- FORT WAYNE MILK SUPPLY AREA



Table 10 - Net reported sales of Class I, Class II, Class III and Class IV Milk and percentage of total sales in each class in the Fort Wayne, Indiana, Marketing Area, by months, July 1934 to May 1936.

Year and Month	Class I		Class II		Class III		Class IV		Total Sales
	Number of handlers reporting	Sales Pounds	Percent of total	Sales Pounds	Percent of total	Sales Pounds	Percent of total	Sales Pounds	
1934	Number	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Pounds
July	33	1,722,738	58.6	294,604	10.0	921,465	31.4	-	2,938,807
August	33	1,683,622	54.9	318,405	10.4	1,064,565	34.7	-	3,066,592
September	34	1,553,703	52.2	318,428	10.7	1,104,842	37.1	-	2,976,973
October	33	1,557,620	54.6	315,261	11.1	979,412	34.3	-	2,852,293
November	33	1,444,591	60.9	308,446	13.0	619,857	26.1	-	2,372,894
December	30	1,344,856	61.5	302,216	13.8	540,087	24.7	-	2,187,159
Total (6 mo)	33 1/	9,307,130	56.8	1,857,360	11.3	5,230,228	31.9	-	16,394,718
1935	Number	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Pounds
January	30	1,401,384	66.1	265,953	12.6	451,946	21.3	-	2,119,283
February	30	1,281,125	67.5	248,440	13.1	367,955	19.4	-	1,897,520
March	26	1,442,674	69.7	276,736	13.4	348,909	16.9	-	2,068,319
April	36	1,558,211	68.6	290,580	12.8	421,830	18.6	-	2,270,621
May	37	1,787,190	55.1	365,153	11.3	1,090,583	33.6	-	3,242,926
June	33	1,618,935	49.2	338,099	10.3	1,176,491	35.8	4.7	3,289,621
July	32	1,655,718	58.3	287,072	10.1	666,378	23.4	8.2	2,842,791
August	30	1,587,140	56.3	288,784	10.2	368,460	13.1	20.4	2,820,123
September	30	1,520,928	58.0	315,377	12.0	277,740	10.6	19.4	2,623,434
October	30	1,556,726	65.3	309,611	13.0	104,296	4.4	17.3	2,383,485
November	29	1,380,866	66.4	290,535	14.0	45,867	2.2	17.4	2,079,482
December	29	1,418,786	62.7	324,912	14.4	86,213	3.8	19.1	2,262,205
Total	31 1/	18,209,683	60.9	3,601,252	12.0	5,406,668	18.1	13.3	29,899,810
1936	Number	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Pounds
January	27	1,449,921	62.1	296,466	12.7	128,004	5.5	19.7	2,334,769
February	22	1,288,674	63.1	273,289	13.4	75,875	3.7	19.8	2,041,850
March	21	1,462,833	63.0	319,232	13.8	70,736	3.0	20.2	2,321,127
April	26	1,520,309	62.6	350,946	14.4	115,672	4.8	18.2	2,429,978
May	24	1,685,112	52.9	352,100	11.0	590,368	18.5	17.6	3,189,682

Compiled from reports of the Market Administrator, License No. 64

These wide variations in percentages used in each class arise from the fact that the amount consumed as fluid milk and cream does not fluctuate to the same extent as production and although handlers cannot use all the milk as Class I and II they must handle large seasonal surpluses in order that they may be assured of an adequate supply in the short seasons.

C. Minimum Prices to be Paid Producers Provided by the Proposed Marketing Agreement and Proposed Order.

The minimum price for Class I milk according to the terms of the Proposed Marketing Agreement and Proposed Order, for milk testing 4 percent butterfat content, delivered from the producer's farm to the handler's plant located in the Marketing Area is \$2.25 per hundredweight.

The minimum price for Class II milk proposed for milk delivered to handlers' plants located in the Marketing Area is four (4) times the average price per pound of 92-score butter at wholesale in the Chicago market as reported by the U. S. Department of Agriculture, for the delivery period during which such milk is purchased, plus 30 percent thereof, plus 20 cents.

The minimum price for Class III milk proposed for milk delivered to handlers' plants located in the marketing area is four (4) times the average price per pound of 92-score butter at wholesale in the Chicago market as reported by the U. S. Department of Agriculture, for the delivery period during which such milk is purchased, plus 30 percent thereof.

The minimum price for Class IV milk proposed for milk delivered to handlers' plants located in the marketing area is four (4) times the average price per pound of 92-score butter at wholesale in the Chicago market as reported by the U. S. Department of Agriculture for the delivery period during which such milk is purchased plus 10 cents.

D. Price History of the Fort Wayne, Indiana, Market.

1. Farm price of milk sold wholesale. The average annual farm prices per hundredweight of milk sold wholesale in the states of Indiana and Ohio, for the period 1910 to 1935, inclusive, are shown in Table 11. During this period these prices reached a high point of \$3.38 per hundredweight in Indiana in 1919, and \$3.41 per hundredweight in Ohio in 1920. During the depression of 1921 and 1922, these prices declined materially. Some slight recovery in the farm price of milk sold at wholesale in Indiana and Ohio was made in 1923, but from that period to 1929 the farm prices remained relatively stable. With the advent of the depression in 1929 and 1930 the farm price of milk sold at wholesale in Indiana and Ohio dropped much farther than during the 1921 depression, reaching a low point of \$1.32 per hundredweight in Indiana in 1933, and \$1.13 per hundredweight in Ohio in 1932. Since 1933 these prices have increased



Table 11 - Farm price of Milk sold wholesale, per hundredweight in  
Indiana and Ohio, 1910 - 1935.

Year	Indiana	Ohio
	Dollars	Dollars
1910	1.69	1.51
1911	1.70	1.43
1912	1.68	1.55
1913	1.77	1.65
1914	1.79	1.65
1915	1.72	1.60
1916	1.92	1.72
1917	2.52	2.45
1918	2.97	3.06
1919	3.38	3.35
1920	3.25	3.41
1921	2.28	2.40
1922	2.03	2.07
1923	2.57	2.57
1924	2.37	2.26
1925	2.37	2.40
1926	2.42	2.40
1927	2.50	2.51
1928	2.53	2.50
1929	2.54	2.52
1930	2.23	2.19
1931	1.73	1.62
1932	1.40	1.13
1933	1.32	1.16
1934	1.48	1.50
1935	1.58	1.64

Compiled from reports of the Bureau of Agricultural Economics,  
Division of Crop and Livestock Estimates.

somewhat, but are still materially below the 1929 level.

2. Handlers estimated buying prices per hundredweight of 4 percent milk used for city distribution. The estimated prices paid by handlers for Class I milk in the Fort Wayne market (f.o.b. city) by months, August 1927 to June 1936 are shown in Table 12. From the high point of \$3.10 per hundredweight in January, 1929, such prices fell to their lowest point in November 1932 when the estimated price paid by handlers for Class I milk in the Fort Wayne Marketing Area was \$.99 per hundredweight. When license No. 64 for the Fort Wayne, Indiana, Marketing Area, became effective on July 1, 1934, the Class I price was established at \$1.85 per hundredweight for 4 percent milk. Supply and demand conditions changed to such an extent that the producers association negotiated an agreement with the handlers in the Fort Wayne Marketing Area whereby the handlers agreed to pay \$2.00 per hundredweight for Class I milk, and license No. 64 was amended June 19, 1935 increasing the Class I price from \$1.85 to \$2.00 per hundredweight for 4 percent milk. The Class I price of \$2.00 per hundredweight has remained in effect from June 19, 1935 up to the present time.

The formula for determining the Class II price in the Fort Wayne Marketing Area has remained the same since the license was made effective July 1, 1934. This formula is as follows: four (4) times the average price per pound of 92-score butter at wholesale in the Chicago market, as reported by the U. S. Department of Agriculture for the delivery period during which such milk is purchased, plus 30 percent thereof, plus 20 cents.

The Class III and Class IV prices charged handlers under the license have already been discussed briefly under "Use Classification."

Table 13 shows the prices paid by handlers for 4 percent milk per hundredweight by classes under license No. 64, as well as the weighted average price of all milk pooled, f.o.b. Fort Wayne, during the period July 1934 to March 1936, inclusive. Even though the percent of the total milk pooled used in Class III and Class IV for the first 3 months of 1936 was higher than for the corresponding 3 months in 1935, the weighted average price for the first 3 months in 1936 was approximately 10 cents per hundredweight higher than for the corresponding period in 1935. The higher average price for the first 3 months period in 1936 over the same period in 1935 was due principally to the higher price paid for Class I milk.

3. Class prices. Prior to the adoption of the Federal Milk License on June 30, 1934, the majority of distributors paid for milk in the Fort Wayne Marketing Area on a flat price basis. However, one of the larger distributors had a basic-surplus plan for purchasing milk in



Table 12 - FORT WAYNE, INDIANA: Estimated prices <sup>1/</sup> which handlers would have paid for 4% Class I Milk per hundredweight delivered f.o.b. City

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1926							2.30	2.39	2.33	2.48	2.55	2.60	
1927	3.00	2.89	2.82	2.79	2.76	2.56	2.41	2.67	2.52	2.67	2.74	2.69	2.71
1928	2.93	2.98	2.79	2.77	2.79	2.65	2.62	2.65	2.74	2.86	2.86	3.05	2.81
1929	3.10	2.84	2.91	2.75	2.65	2.63	2.68	2.75	2.72	2.97	3.10	2.93	2.84
1930	2.71	2.42	2.50	2.50	2.49	2.32	2.21	2.36	2.44	2.46	2.63	2.49	2.46
1931	2.31	1.83	1.86	2.14	1.88	2.02	1.80	1.47	1.90	1.83	1.94	2.10	1.92
1932	1.93	1.99	1.64	1.74	1.81	1.26	1.27	1.46	1.18	1.07	.99	1.30	1.47
1933	1.47	1.41	1.30	1.31	1.46	1.44	1.64	1.88	1.68	1.69	1.77	1.96	1.58
1934	1.97	1.81	1.74	1.69	1.52	1.56	1.85	1.85	1.85	1.85	1.85	1.85	1.78
1935	1.85	1.85	1.85	1.85	1.85	1.91	2.00	2.00	2.00	2.00	2.00	2.00	1.93
1936	2.00	2.00	2.00	2.00	1.92	2.00	2.00	2.00					

<sup>1/</sup> Calculated by relating the estimated prices for Class II and Class III milk to the estimated percentage in each class - Class I - 50%, Class II - 12%, and Class III - 38% -- and assuming Class I prices to be the amount necessary to give the average prices paid by two Fort Wayne distributors.

operation for about two years prior to the time the license went into effect.

When the license was put into effect, a classified price plan was introduced with Class I, Class II and Class III prices provided instead of a flat price for milk. On June 16, 1935 a fourth class was established for the Fort Wayne market.

a. Class I price. A minimum Class I price of \$1.85 per hundred pounds of 4.0 percent milk, f.o.b. Fort Wayne, Indiana, was set at the time the license was put into effect. This minimum price remained in effect until June 19, 1935 when the minimum Class I price was raised to \$2.00. (Table 13.) From July, 1934 - May, 1936, Class I prices averaged \$.42 per hundredweight over the condensery price paid in the area. This does not appear to be unreasonable in view of the quality requirements for this market and the fact that over 28 percent of the entire milk supply from July, 1934 - May, 1936 was surplus milk which was sold at Class III and IV prices.

b. Class II price. The Class II price, as computed from the formula set up in the license, exceeded the Class I price as established by the license in January, February, and April of 1935 and again in February of 1936. The formula established under license, No. 64, for the computation of the Class II price and now proposed is as follows: four times the average price per pound of 92-score butter at wholesale in the Chicago market, as reported by the United States Department of Agriculture for the delivery period during which such milk is purchased, plus 30 percent thereof, plus 20 cents. Because of the wide fluctuations in the price of Chicago 92-score butter, the Class II price fluctuated between a low point of \$1.42 in June, 1935 to a high point of \$2.06 in February, 1936.

During the period July 1, 1934 - May 31, 1936, under the Federal license, the average price for Class II milk was \$1.54 for a hundred pounds of 3.5 percent milk. The condenseries near the Fort Wayne milk shed paid during this period an average price of \$1.35 for a hundred pounds of 3.5 percent milk. (See Table 14.) Assuming that the average hauling rate of \$.25 per hundred pounds for the Fort Wayne market would be the rate charged for hauling milk to condenseries in the area, producers shipping to the Fort Wayne market have received \$.19 more for their Class II milk than was paid at condenseries during the period the license has been in effect.

The formula for establishing the price for Class II milk is based on the Chicago wholesale butter market plus 30 percent, which is approximately what condenseries pay for milk, twenty cents is added for the somewhat better quality of milk received from fluid milk producers and for the conveniences of having the nearby supply.



Table 13 - FORT WAYNE, INDIANA: Prices paid by handlers for 4% Milk per hundredweight by classes and weighted prices for all milk delivered f.o.b. city, monthly, July 1934 - May 1936

Year and Month	Class I	Class II	Class III	Class IV	Weighted Price
	Dollars	Dollars	Dollars	Dollars	Dollars
<u>1934</u>					
July	1.85	1.43	1.04	-	1.55482
August	1.85	1.57	1.15	-	1.57971
September	1.85	1.49	1.09	-	1.53066
October	1.85	1.54	1.13	-	1.56918
November	1.85	1.71	1.26	-	1.67683
December	1.85	1.74	1.28	-	1.69353
Average	1.85	1.58	1.16	-	1.60079
<u>1935</u>					
January	1.85	1.89	1.40	-	1.76074
February	1.85	2.01	1.50	-	1.80361
March	1.85	1.80	1.33	-	1.75596
April	1.85	1.90	1.40	-	1.77389
May	2.00	1.55	1.14	-	1.65821
June	2.00	1.42	1.10	1.03	1.57067
July	2.00	1.42	1.18	1.04	1.67038
August	2.00	1.47	1.22	1.08	1.65562
September	2.00	1.52	1.27	1.12	1.69358
October	2.00	1.61	1.36	1.18	1.77934
November	2.00	1.84	1.58	1.36	1.85711
December	2.00	1.92	1.66	1.42	1.86391
Average	1.95	1.70	1.34	1.18	1.73388
<u>1936</u>					
January	2.00	1.95	1.68	1.45	1.86600
February	2.00	2.06	1.78	1.52	1.90500
March	2.00	1.82	1.56	1.35	1.83064
April	1.92	1.74	1.48	1.29	1.74243
May	2.00	1.57	1.32	1.15	1.61985

Compiled from reports of the Market Administrator,  
Fort Wayne Sales Area

Table 14 - FORT WAYNE, INDIANA: Average prices paid by condenseries for 3.5% Milk per cwt. in Section I which includes the Marketing Area. <sup>1</sup>/<sub>1</sub>

Compiled from reports of the Bureau of Agricultural Economics, Division of Dairy and Poultry Products

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1932	1.12	1.00	.96	.93	.87	.81	.81	.86	.90	.91	.90	.95	.92
1933	.96	.85	.84	.87	1.00	1.05	1.12	1.14	1.13	1.14	1.13	1.03	1.02
1934	1.01	1.14	1.17	1.06	1.11	1.15	1.11	1.23	1.17	1.20	1.31	1.35	1.17
1935	1.48	1.60	1.44	1.51	1.24	1.12	1.13	1.18	1.23	1.31	1.50	1.58	1.36
1936	1.59	1.64	1.46	1.40	1.28								

<sup>1</sup>/<sub>1</sub> Section I includes: Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, Wisconsin and Maryland.



c. Class III price. The formula for calculating the minimum Class III price under the Federal license is as follows: four times the average price per pound of 92-score butter at wholesale in the Chicago market as reported by the United States Department of Agriculture for the delivery period during which such milk is purchased, plus 25 percent. The Class III price under the Federal license during the period July 1, 1934 to May 31, 1936 averaged \$1.19. (3.5 percent milk) This average price was 16 cents lower than the average price paid by the condenseries operating adjacent to this area.

It is now proposed that the formula be increased to Chicago wholesale butter plus 30 percent in order to bring that price more in line with the prices paid by condenseries.

d. Class IV price. The formula for calculating the minimum Class IV price (introduced on June 19, 1935) under the Federal license and now proposed is as follows: four times the average price per pound of 92-score butter at wholesale in the Chicago market as reported by the United States Department of Agriculture for the delivery period during which such milk is purchased, plus 10 cents.

The Class IV price under the Federal license during the period July 1935 - May 1936 averaged \$1.12 per hundred pounds of 3.5 percent milk. This average price was 27 cents lower than the average price paid by condenseries operating adjacent to this area. Because most of this Class IV milk is used for the manufacture of butter, the formula proposed for pricing the class of milk is based on the Chicago wholesale butter market with a \$.10 per hundredweight charge for the skim milk delivered. The value of the overrun is allowed the handler for his expense and trouble in taking care of the surplus milk.

#### 4. Butterfat differential.

The history of the butterfat differential is presented in Table 15. The butterfat differential varied from \$.05 per 1/10 of a percent per hundredweight from 1922 to 1931 to approximately \$.03 per 1/10 of a percent per hundredweight in 1934 and 1935. During the period since 1922 the prevailing test of butterfat in milk sold by handlers has tended to increase from approximately 3.6 percent to about 3.9 percent. (See Table 16)

The butterfat differential, in a market where standardization is practiced, must be in line with the price for which the handler could buy the additional butterfat he wants. In this market, because of health regulations, the cheapest a handler can buy butterfat for use in fluid milk is the value of butterfat in Class II milk which has been \$.03 per hundredweight.

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Table 15. - FORT WAYNE, INDIANA: Fluid Milk Prices  
Allowance per 1 1/10 Percent Butterfat per Hundredweight

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
1919	F 1/	F	F 1/	F	F	F 1/	F 1/	F	F	F	F 1/	F	F
1920	F	F	F 1/	F	F	F 1/	F 1/	F	F	F	F 1/	F 1/	F
1931	F	-	-	-	-	-	-	-	-	-	-	-	-
1922	5 1/	5	5	5	5	5	5	5	5	5	5	5	5.00
1923	BF	BM	BM	BM	BM	BF	BF	BF	BF	BF	BF	BF	-
1924	-	BF	BM	BM	-	-	-	-	-	-	-	-	-
1925	-	-	-	BM	-	-	-	-	-	-	-	-	-
1926	5	-	-	-	-	5	5	5	5	5	5	5	5
1927	-	5	5	5	5 1/	5	5	5	5 1/	5 1/	5 1/	5 1/	5.00
1928	5	5	5	5	5	5 1/	5	5	5 1/	5 1/	5 1/	5 1/	5.00
1929	5	5 1/	5 1/	5 1/	5	5 1/	5 1/	5 1/	5 1/	5 1/	5 1/	5 1/	5.00
1930	5	5 1/	5 1/	5 1/	5	5 1/	5 1/	5 1/	5 1/	5 1/	5 1/	5 1/	5.00
1931	5 1/	5 1/	5 1/	5 1/	5	5	5	5 1/	5	5	5	5	5.00
1932	5	5	5 1/	5 1/	5	5	5	5	5	5	5	5	5
1933	3 1/	3 1/	3 1/	3 1/	3 1/	3	3.3	4	4	4	4	4	3.44
1934	4	3	3	3	3	3 1/	3	3	3	3	3	3	3.03
1935	3	3	3	3	3	3	3	3	3	3	3	3	3.00
1936	3	3	3	3	3	3	3	3	3	3	3	3	3

Compiled from reports of the Bureau of Agricultural Economics, Division of Dairy and Poultry Products.

1/ Interpolated

F Flat Price

BF Butterfat Basis

BM Butter Market Prices



August 5, 1936.

Table 16. - FORT WAYNE, INDIANA: Fluid Milk Prices  
Prevailing Butterfat Test of Milk Sold

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1919	3.65 1/2	3.7	3.65 1/2	3.5-	3.6 1/2	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.62
1920	3.6	4.0	3.7	3.6	3.8	3.8	3.8	3.8	3.8	3.8	3.8 1/2	3.8 1/2	3.79
1921	3.7 1/2	3.7	3.7	3.7	3.75 1/2	3.75 1/2	3.75 1/2	3.8 1/2	3.8 1/2	3.8 1/2	3.8 1/2	3.8 1/2	3.75 1/2
1922	3.7	3.6-	3.8 1/2	3.8-	3.8	3.7	3.8	3.8	3.8	3.8	3.8 1/2	3.8 1/2	4.79
1923	3.8	3.8 1/2	3.8 1/2	3.7-	3.7	3.7 1/2	3.7	3.7 1/2	3.7 1/2	3.7	3.8	3.8	3.75
1924	3.8	3.8	3.8	3.8	3.8	3.8	3.7-	3.8	3.8	3.8	3.8	3.8	3.80
1925	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.80
1926	3.8	3.8 1/2	3.8 1/2	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.80
1927	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.80
1928	3.8	3.8	3.8	3.8	3.8 1/2	3.8	3.8 1/2	3.8	3.8 1/2	3.8 1/2	3.8	3.8 1/2	3.80
1929	3.8	3.8	3.8	3.8	3.8	3.8 1/2	3.8	3.8	3.8 1/2	3.8 1/2	3.8	3.8	3.80
1930	3.8	3.8 1/2	3.8	3.8	3.8	3.8 1/2	3.8	3.8	3.8	3.8	3.8 1/2	3.8 1/2	3.80
1931	3.8	3.8 1/2	3.8 1/2	3.8 1/2	3.8	3.8	4.0	3.9 1/2	3.8	3.8	4.0	3.8-	3.85
1932	3.9 1/2	3.8-	3.8-	3.8-	3.8 1/2	3.8 1/2	3.8 1/2	3.8	3.8-	4.0	4.0 1/2	4.0 1/2	3.89
1933	3.8	4.0	4.0 1/2	4.0 1/2	4.0	4.0	4.0	3.8-	4.0	3.8-	3.8-	3.8-	3.94
1934	3.8-	4.0	4.0	4.0	3.8-	3.8-	4.0	3.8	3.8-	3.8-	3.8-	3.8-	3.93
1935	3.8-	3.8-	3.8-	3.9	4.0 1/2	4.2	3.8-	3.8-	4.0	3.8-	3.8-	3.8-	3.90
1936	-	4.0	3.8-	3.8-	3.9	3.9 1/2	3.8-	3.8-	4.0	3.8-	3.8-	3.8-	3.90

Compiled from reports of the Bureau of Agricultural Economics, Division of Dairy and Poultry Products.

1/2 Interpolated.

## PART VI.

### Demand Conditions in the Fort Wayne, Indiana, Marketing Area.

#### A. Business Conditions - Purchasing Power of Consumer.

Although no data have been compiled on factory payrolls in the Fort Wayne Marketing Area, business conditions tend to follow closely the trend of employment in Chicago. Employment in manufacturing industries, in Chicago, Illinois, in 1935 was 104.1 percent of the employment in November 1931. The average index of employment for 1935 shows a gain of 2 percent over 1934, and a gain of 15.2 percent over 1933. (See Table 17.) Indexes of payroll totals in manufacturing industries in Chicago, Illinois, were considerably higher in 1935 than in 1934 and 1933. The index of payroll totals in 1935 shows a gain of 6.4 percent over 1934, and 25.9 percent over 1933. (See Table 18.) These data indicate that the purchasing power of wage earners in the Area is steadily increasing.

Unemployment in Fort Wayne, Indiana, shows a very marked decrease during the period November 1934 to June 1935. The number of cases on direct relief decreased from 5,220 in November 1934 to 2,738 in June 1935, or approximately 48 percent. During this same period the total cost of relief decreased from \$84,799.17 in November 1934 to \$37,553.91 in June 1935, or a decrease of approximately 56 percent. There was little change in the number of cases on work relief and the cost of work relief declined only slightly. (See Table 19.)

Further evidence of improved demand conditions in the area is contained in table 20, showing total bank debits in Fort Wayne, Indiana, during the period July 1933 - June 1935. Each month in the period July 1934 - June 1935 shows an increase in bank deposits in Fort Wayne, Indiana, compared with the period July 1933 - June 1934.

The Monthly Review of Business Conditions, issued by the Federal Reserve Bank of Chicago, May 15, 1936, for the Seventh Federal Reserve District, shows that the number of wage earners in 14 industrial groups increased 1.5 percent for May 15, 1936, over April 15, 1936. During this same period the earnings of wage earners increased 2.1 percent. (See Table 21.) Further indications of the increases in demand are presented in the review. Passenger automobile production was 26 percent higher in May 1936 than in May 1935. Department store sales increased 15.3 percent, building contracts, 91.9 percent, and pig iron production, 50 percent in May 1936 as compared with May 1935.

The manufacture of agricultural implements and machinery is one of the major industrial enterprises carried on in Fort Wayne, Indiana. The International Harvester Company's branch plant is located at Fort



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Table 17. - CHICAGO, ILLINOIS: Index Number of Employment in Manufacturing Industries by Months, November 1931 - 1936

(November 1931 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1931	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1932	97.7	96.0	94.1	91.1	89.3	88.3	85.6	86.8	84.8	84.4	82.9	81.0	88.5
1933	79.9	79.9	78.5	79.3	81.5	85.6	89.2	97.6	100.0	101.4	98.6	95.8	88.9
1934	93.8	96.3	99.3	100.3	102.2	104.4	104.0	104.3	107.3	105.5	103.5	104.0	102.1
1935	101.4	103.5	104.3	105.9	105.1	103.9	101.6	100.9	103.7	104.4	105.8	108.2	104.1
1936	105.5	105.2	106.2	107.4									

Computed from reports of the Bureau of Labor Statistics

August 5, 1936.

Table 18. - CHICAGO, ILLINOIS: Index Numbers of Payroll Totals in Manufacturing Industries by Months, November 1931 - 1935

(November 1931 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1931											100.0	101.3	78.5
1932	95.1	94.9	90.6	85.4	82.0	78.2	71.8	72.0	70.0	69.6	66.4	65.5	73.8
1933	64.4	64.6	61.9	61.4	66.0	71.1	75.7	83.7	84.7	86.5	83.1	82.8	73.8
1934	82.5	84.8	88.8	89.9	94.3	96.7	97.2	96.7	97.4	98.9	95.4	96.9	93.3
1935	94.7	98.3	99.9	101.5	99.5	98.9	97.0	96.4	101.0	101.1	101.5	107.0	99.7
1936	104.1	103.9	107.3	107.0									

Computed from reports of the Bureau of Labor Statistics



Table 19: Direct and Work Relief to Residents of Allen County (Fort Wayne),  
Indiana, November 1934 - June 1935

Year and Month	Direct Relief			Work Relief				
	Number of cases	Amount of Relief	Percent of change from preceding month	Average per case	Number of cases	Amount of Relief	Percent of change from preceding month	Average per case
		<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>		<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>
1934								
November	5,220	84,799.17	+ 14.0	16.25	2,345	101,177.08	+ 11.8	43.15
December	4,857	84,854.04	+ 0.1	17.47	2,436	103,777.22	+ 2.6	42.60
1935								
January	5,293	91,344.99	+ 7.6	17.26	2,477	96,718.18	- 6.8	39.05
February	5,359	82,718.49	- 9.4	15.44	2,539	79,459.23	- 17.8	31.50
March	5,080	79,983.18	- 3.3	15.74	2,642	97,839.87	+ 23.1	37.03
April	4,612	65,082.69	- 18.6	14.11	2,742	87,790.28	- 10.3	32.02
May	3,996	50,838.76	- 21.9	12.72	2,621	89,775.95	+ 2.3	34.25
June	2,728	37,553.91	- 26.1	13.77	2,387	80,916.20	- 9.9	33.90

Compiled from the annual report of the Market Administrator

Table 20: Total Bank Debits in the Fort Wayne Area  
July 1933 - June 1935

Month	1935	1934	1933
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
January	23,392,000	20,794,000	
February	23,306,000	18,823,000	
March	25,027,000	22,750,000	
April	26,155,000	22,566,000	
May	27,810,000	26,313,000	
June	26,167,000	24,162,000	
July		23,054,000	21,237,000
August		22,252,000	19,587,000
September		20,942,000	19,518,000
October		23,605,000	19,815,000
November		23,260,000	19,871,000
December		23,827,000	21,228,000

Compiled from the Annual report of the Market Administrator



Table 21.- Employment and Earnings - Seventh Federal Reserve District

Industrial Groups	Week of May 15, 1936			Change from Apr. 15, 1936	
	Reporting Firms	Wage Earners	Earnings (000 Omitted)	Wage Earners	Earnings
	Number	Number	Dollars	Percent	Percent
DURABLE GOODS					
Metals and Products <u>1/</u>	1,463	365,710	9,436	+ 1.5	+ 3.5
Vehicles	315	359,580	11,221	+ 1.3	+ 1.1
Stone, Clay and Glass	251	20,370	446	+ 4.1	+ 5.8
Wood Products	442	41,510	761	+ 2.4	+ 1.5
Total	2,471	787,170	21,864	+ 1.7	+ 2.2
NON DURABLE GOODS					
Textiles and Products	322	60,833	1,022	- 1.0	- 4.3
Food and Products	725	95,966	2,251	+ 4.4	+ 7.6
Chemical Products	227	30,307	784	+ 2.3	+ 4.3
Leather Products	137	25,179	446	- 2.2	- 2.6
Rubber Products	33	13,669	344	+ 1.7	+ 5.5
Paper and Printing	629	70,052	1,815	+ 0.2	+ 1.4
Total	2,073	296,006	6,662	+ 1.3	+ 2.7
Total Mfg., 10 Groups	4,544	1,083,176	28,526	+ 1.6	+ 2.3
Merchandising <u>2/</u>	2,423	109,999	2,265	- 1.0	- 0.3
Public Utilities	160	87,747	2,741	+ 1.3	- 0.3
Coal Mining	26	5,021	107	+ 3.1	- 1.
Construction	301	12,217	279	+20.6	+27.
Total Non- Mfg., 4 Groups	2,910	214,984	5,392	+ 1.1	+ 0.8
Total 14 Groups	7,454	1,298,160	33,918	+ 1.5	+ 2.1

Compiled from the Monthly Review of Business Conditions, Federal Reserve Bank of Chicago.

1/ Other than Vehicles.

2/ Illinois, Indiana, and Wisconsin.

Wayne, and in the summer of 1935 a new million dollar addition to its branch plant was under construction. Also, the district sales and assembly plant of the John Deere Plow Company is located at Fort Wayne.

#### B. The Trend of Milk Consumption - Fort Wayne Marketing Area.

The Fort Wayne Board of Health has released some figures on consumption of milk in the metropolitan area during the period 1921 - 1933. (See Table 22.) These figures indicate that the per capita consumption of fluid milk in Fort Wayne was lowest in 1921 and that the trend was upward to 1928 when the daily per capita consumption of milk reached .940 pounds. Since 1928, the trend in the daily per capita consumption of milk in Fort Wayne has been downward, reaching .563 pounds in 1933.

The Market Administrator of the Fort Wayne Milk License has compiled some figures on milk consumption in the Fort Wayne Marketing Area during the period July 1934 - June 1935. These figures indicate that consumption of milk in the area is highest during April and May and lowest during November and December. (See Table 23.) However, these figures are not comparable because a resale price war was in progress in the market during five months of this period (December 1934 - April 1935), the retail price of quarts dropping from 10 to 6 cents. The low price to consumers undoubtedly increased consumption of milk during this period, especially since the reduction in price was made only on quarts and the prices charged consumers for milk in quarts and pints were the same during part of this period. This policy would have the effect of shifting the demand for milk from pints to quarts.

#### C. Sanitation Requirements.

The Fort Wayne, Indiana, health regulation ordinance passed in 1922 provides for four grades of milk.

1. Grade A raw milk must have a bacteria count of less than 30,000 per cubic centimeter at the time of its delivery to consumers. The animals producing such milk must be free from disease, tuberculin tested annually and must be physically examined once a month.

2. Grade A pasteurized milk must not have more than 500,000 bacteria per cubic centimeter when delivered to pasteurizing stations in the city, and 30,000 when delivered to consumers. The animals producing such milk must be tested annually for TB and must have a physical examination semi-annually.



Table 22. FORT WAYNE, INDIANA: Population of area and apparent total consumption of milk, daily average consumption of milk and daily per capita consumption of milk, 1921-1933. 1/

Year	Population of area consumption covers	Total consumption of milk	Daily average consumption of milk	Daily per capita consumption of milk
	<u>Number</u>	<u>Thousand pounds</u>	<u>Pounds</u>	<u>Pounds</u>
1921	93,000	12,831	35,154	.378
1922				
1923	102,982	19,170	52,521	.510
1924	100,000	21,973	60,200	.602
1925	100,000	19,163	52,500	.525
1926	110,000	25,094	68,750	.625
1927				
1928	105,300	36,128	98,982	.940
1929	120,000	33,770	92,520	.771
1930	125,000	28,150	77,125	.617
1931	125,000	31,390	86,000	.688
1932	121,300	30,195	82,727	.682
1933	122,000	25,070	68,686	.563

1/ As reported by the City Board of Health.

Table 23. FORT WAYNE, INDIANA: Per capita consumption of fluid milk. <sup>1/</sup>  
July 1, 1934 - June 30, 1935.

Year and Month	Total Sales of Bottled Milk	Daily Average Consumption	Per Capita Per Day Consumption	Per Capita Per Day Consumption	Resale Price per Quart
	Pounds	Pounds	Pounds	Pints	Cents
<u>1934</u>					
July	1,722,738	55,570	.4832	.4295	10
August	1,683,622	54,310	.4723	.4198	10
September	1,613,118	53,771	.4676	.4156	10
October	1,676,438	54,078	.4702	.4180	10
November	1,550,556	51,685	.4494	.3994	10
December	1,506,963	48,612	.4227	.3758	6-10
<u>1935</u>					
January	1,719,907	55,481	.4824	.4288	6-7
February	1,622,539	57,948	.5039	.4479	6-7
March	1,736,984	56,032	.4872	.4331	6-7
April	1,874,087	62,469	.5432	.4828	6-7
May	1,898,405	61,238	.5325	.4733	10
June	1,725,575	57,519	.5002	.4446	10
Average	1,694,244	55,701	.4843	.4306	8.67

Compiled from the annual report of the Market Administrator, License No. 64

<sup>1/</sup> The above figures are adjusted to approximate 100 percent of milk in the market, since 91 percent of all milk sold has been reported to the Market Administrator for the year. 100 percent has been reported for five delivery periods. It is possible to adjust the reported sales to a 100 percent market with a fair degree of accuracy.



3. Grade B pasteurized milk must not have more than 500,000 bacteria per cubic centimeter when delivered to a pasteurizing and bottling station in the city; and 50,000 when delivered to consumers. The animals must be tested annually for TB with a physical examination every six months.

4. Grade C milk can be pasteurized for use in manufacturing and cooking only. The bacteria count must not exceed 1,000,000 per cubic centimeter when delivered to the pasteurizing station and not more than 50,000 when delivered to consumers. It can be delivered to consumers in cans only, within 36 hours after pasteurization.

All milk used for buttermilk must be of such quality that, when fresh, it could be sold as Grade A Pasteurized or Grade B Pasteurized.

No grade of milk, skimmed milk or cream can be received and placed in a final container at a plant where another grade of milk, skimmed milk or cream is bottled, canned or placed in other final containers.

Tuberculin tests of cattle and plate count tests of pasteurized milk are made regularly by the Board of Health. In addition, the larger dairies make methylene blue tests in the summer months and most dairies take sediment tests the year round.

#### PART VII.

The Supply Conditions in the Area Supplying Milk to the Fort Wayne, Indiana Marketing Area.

A. Location and boundaries of the Fort Wayne, Indiana, milk supply area.

1. Counties in which Fort Wayne milk supply originates.

The milk which enters the Fort Wayne milk market comes from the two states, Indiana and Ohio. Producers who supply milk to this market are located in the following counties: Adams, Allen, DeKalb, Huntington, Noble, Wells and Whitley in Indiana; Paulding and Van Wert in Ohio. (See Figure 1.)

2. The total area and location of producers in the Fort Wayne, Indiana milk shed.

The market milk supply of the Fort Wayne, Indiana market is drawn from an area of approximately 25 miles from

the city of Fort Wayne. There are no country receiving stations located in the area. All milk is delivered direct to the handlers' plants in the marketing area.

Within an area of approximately 40 miles of the city of Fort Wayne, there are located 5 condenseries, 5 cheese factories and 18 creameries. (See Table 24.) Some of these manufacturing milk plants border on the Fort Wayne milk supply area and one condensery is located at Fort Wayne, so that the milk producers supplying the Fort Wayne milk market are intermingled with producers supplying the manufacturing milk plants in the area.

### 3. Competing markets for milk produced in the area.

The condenseries, cheese factories and creameries in the area compete with the Fort Wayne fluid milk market for their milk supply. These milk plants represent alternative markets for the milk of the producers and the prices paid to producers by these plants determines to some extent the market to which the producer will send his product. If the price differential between the milk used to supply the fluid milk market and the milk used to supply the manufactured milk plants is wide enough to compensate the producers to go to the added expense of producing milk for the fluid milk market we can expect producers to shift from the production of milk for manufacturing purposes to the producing of milk for fluid milk purposes in the Fort Wayne market. On the other hand, if the price paid for milk by the manufacturing plants is more favorable relative to the price paid for milk by the fluid milk handlers in Fort Wayne, it can be expected that some producers will tend to shift from the production of milk for the fluid milk market to the production of milk for the manufacturing milk plants.

During certain short periods, however, the average price paid to producers may be below the price paid to producers by condenseries in the area. If producers shifted freely from the fluid milk market to the manufactured milk market when the relationship between the prices paid to producers for milk in the two markets was favorable to the latter, and vice versa, the condition noted above could not prevail over any extended period of time.

In any market where there is a large potential supply of milk and cream intermingled within the fluid milk supply area, or even surrounding the area, the prices paid for milk in the



Table 24. Creameries, Cheese Factories and Condenseries located in the Fort Wayne Milk Supply Area.

Company	City	State	County
<u>Creameries</u>			
Iola Terry	Angola	Indiana	Steuben
Parlor City Creamery	Bluffton	"	Wells
Kraft-Phenix Corp.	Decatur	"	Adams
Staley Dairy Products	"	"	"
Eskay Dairy Co.	Fort Wayne	"	Allen
F. H. George & Co.	" "	"	"
Schlosser's Creamery	" "	"	"
Products, Inc.	" "	"	"
Sherman White & Co.	" "	"	"
State Creamery	" "	"	"
Meadowbrook Farms	Hicksville	Ohio	DeKalb
State St. Creamery	Huntington	Indiana	Huntington
Sunrise Dairies	Laketon	"	Wabash
El River Creamery	N. Manchester	"	"
Roanoke Creamery	Roanoke	"	Huntington
Zanesville Creamery	Zanesville	"	Wells
Gray & White Co.	Defiance	Ohio	Defiance
Swift & Co.	Defiance	"	"
Edon Creamery	Edon	"	Williams
Van Wert Butter Co.	Van Wert	"	Van Wert
<u>Cheese Factories</u>			
County Line Cheese Factory	Auburn	Indiana	DeKalb
Hillside Cheese Co.	Decatur	"	Adams
Kraft-Phenix Cheese Co.	Sweetser	"	Grant
Swift & Co.	Wabash	"	Wabash
Bordens Cheese Co.	Van Wert	Ohio	Van Wert
<u>Condenseries</u>			
Van Camp Milk Co.	Angola	Indiana	Steuben
United Milk Products Co.	Berne	"	Adams
Hoosier Cond. Milk Co.	Bluffton	"	Wells
United Milk Products Co.	Butter	"	DeKalb
Riverside Dairy	Columbia City	"	Whitley
Kraft-Phenix Cheese Corp.	Huntington	"	Huntington
" " " "	Kendalville	"	Noble
Gordon Baking Co.	La Grange	"	La Grange
Van Camp Milk Co.	Bryan	Ohio	Williams
Defiance Milk Products	Defiance	"	Defiance
Montpelier Creamery	Montpelier	"	Williams

marketing area is determined in large measure by the price paid for milk in the competing areas. Especially is this true in a market similar to Fort Wayne, Indiana, where there are several competing outlets for milk. Producers shipping milk to the Fort Wayne market have to meet health requirements and the cost of transporting milk to the marketing area. The relationship between the price paid for milk used for fluid milk purposes and the price paid for milk used in the manufacture of competing dairy products is a very important factor in establishing the price structure for the Fort Wayne, Indiana, milk market.

#### B. Type of farming in the area.

Table 25 shows the four type-of-farming areas which are found in the milk supply area, and gives an indication of the importance of specialized dairy farms among the total of all farms. In type area 317, the east central Indiana - western Ohio - general-livestock-dairy-poultry area, which includes practically the whole of the Fort Wayne milk supply area including that portion of the area which lies closest to the city, approximately 11 percent of the farms are of dairy type with over 40 percent of their income from that source. There are many more farms in this area that receive a large percent of their income from dairying, but this area is a diversified livestock and general farming area and does not depend upon dairying for the major portion of their income.

The other four areas making up the rest of the milk supply area are 315 and 316 to the North and Northwest, and 318a and 318b to the West and Southwest. These areas are even more intensive dairy areas than the area embracing a large part of the Fort Wayne milk supply area, especially 315 to the Northwest and 318b to the Southwest. 30 percent of the farm income in area 315 is derived from dairying compared to 19 percent in area 317. This is probably due to the fact that area 315 borders on the Chicago fluid milkshed and produces milk for the Chicago milk market. Likewise, area 318b to the Southwest of Fort Wayne embraces part of the area supplying the fluid milk requirements of Indianapolis, Indiana, and 25 percent of the farm income in area 318b is derived from dairying. The type of farming in area 316 is very similar to that in 317, while area 318a is mainly general farming, livestock and cash-grain.



Table 25. FORT WAYNE, INDIANA: Types of farming areas in the Fort Wayne Area with their description and percent of income from dairying.

Type Area Number	Description of Area	Percent Income from dairying
315	Northern Indiana - General, dairy, crop-specialty, cash-grain.	30.0
316	Northern Indiana - General, livestock, dairy, poultry.	19.0
317	East Central Indiana - Ohio - General, livestock, dairy, poultry.	19.0
318(a)	Central Indiana - Livestock, general farming, cash-grain	13.0
318(b)	Similar to (a) with more dairy, truck part-time.	25.0

Compiled from "Types of Farming in the United States,"  
U. S. Department of Commerce, Bureau of the Census.

## 1. Use of land.

The Agricultural Census for 1930 shows that approximately 90 percent of the land in Fort Wayne milk supply area was in farms in 1929. The 1935 Agricultural Census shows that the land in farms in this area had increased to almost 95 percent in 1934. Of the area in farms in 1929, pasture made up approximately 30 percent, corn approximately 20 percent, threshed oats approximately 12 percent and hay approximately 15 percent. (See Table 26.) These percentages were not changed materially in 1934, except that a slight decrease is noted in the percent of land in corn and oats with an increase in the percent of land in hay.

## 2. Size of farm.

The average size of all farms and of dairy type farms in the counties in Indiana supplying the Fort Wayne milk market are approximately the same and slightly smaller than for the state as a whole. The average size of all farms and of dairy type farms in Paulding County, Ohio are 131.4 and 107 acres and in Van Wert County, Ohio are 101.3 and 72 acres respectively. (See Table 27.) Probably the reason the average size farm in this area is so much larger than the dairy type farm is due to the fact that Paulding and Van Wert counties in Ohio are approaching the general, cash-grain, livestock area and these farms are generally larger than farms devoted to specialized dairy production.

## C. Character of the dairy herds.

The average size of milk cow herds on farms reporting milk cows in the supply area was 4.4 cows per farm in 1929. This average is fairly representative for the milkshed as shown in Table 27. There does not appear to be any definite relationship between distance from the Fort Wayne market and size of herd. The number of cows per herd in 1929 was 4.8 in Noble County, Indiana and 3.8 in Van Wert County, Ohio, the more distant county, while there was only 4.6 cows per herd in Allen County, Indiana. 4.6 percent of the farms in Van Wert County, Ohio and 9.2 percent of those in Noble County, Indiana are of the dairy type while only 10.3 percent of the farms in Allen County, Indiana are of the dairy type.

The average size of herds on dairy type farms is somewhat larger. The number of cows on dairy type farms in Noble and Van Wert Counties were 8.5 and 6.9 cows per farm, respectively, while in Allen County there were only 7.5 cows per dairy type farm.



Table 26. FORT WAYNE, INDIANA: Use of land in selected counties in the Fort Wayne Milk Supply Area, 1929 and 1934.

State and County	PERCENT OF LAND IN FARMS IN SPECIFIED CROPS																							
	Percent land in farms is of total land				ALL PASTURE				ALL CROPS				CORN				THRESHED OATS				HAY			
	1929		1934		1929		1934		1929		1934		1929		1934		1929		1934		1929		1934	
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	
<b>INDIANA</b>																								
Adams	96.5	95.1	25.6	25.4	67.3	66.7	21.5	18.0	14.2	12.0	17.0	19.0												
Allen	83.1	90.3	27.9	27.2	64.9	64.4	20.0	18.0	14.9	13.2	14.2	15.3												
De Kalb	88.8	92.1	28.9	30.1	62.2	60.3	15.9	14.6	10.2	10.7	15.0	16.2												
Noble	90.1	91.3	31.7	31.1	60.4	59.4	17.3	16.6	10.8	7.4	12.2	13.6												
Wells	93.5	97.0	29.1	29.2	65.8	63.8	23.9	20.9	14.3	10.1	13.9	15.8												
Whitley	92.7	95.2	36.7	35.8	56.5	56.4	18.7	17.2	12.7	9.3	12.8	13.4												
State	85.3	88.9	30.3	30.9	59.5	57.7	21.4	19.8	8.4	5.5	9.8	10.3												
<b>OHIO</b>																								
Defiance	90.4	94.2	27.7	27.0	66.6	64.9	18.3	15.6	14.2	12.9	17.3	15.9												
Paulding	92.5	92.8	19.9	19.8	76.2	74.6	25.9	21.1	23.0	17.7	13.2	13.4												
Van Wert	94.2	95.8	19.7	19.8	75.2	74.7	26.5	22.4	23.8	17.5	14.6	16.9												
State	82.5	87.7	37.4	38.7	52.4	50.4	16.1	14.5	7.2	5.5	12.2	12.5												

Compiled from United States Census of Agriculture, 1930 and 1935.

Table 27. FORT WAYNE, INDIANA: Type and size of farm, size of herd and type of cattle enterprise in selected counties which include the Fort Wayne Milk Supply Area, 1929.

State and County	Percent of farms with over 40% income from dairy	Average Size of Dairy Farm Acres	Number of Milk Cows		Total No. of cattle per Sq. Mile	Percent Milk Cows are of all Cattle	Percent milk cows of dual-purpose or beef-breeding are of all cows milked	
			Average Size of Dairy Farm Acres	Per Farm reporting Milk Cows			All Farms	Dairy Farms
			Acres	Number	Number	Percent	Percent	Percent
INDIANA								
Adams	12.6	97.2	96	5.1	60.9	48.1	12.7	5.5
Allen	10.3	101.1	107	4.6	44.7	47.9	17.3	11.1
De Kalb	9.5	94.6	94	4.5	46.5	49.9	15.5	7.6
Noble	9.2	106.4	109	4.8	50.0	45.8	9.8	4.7
Wells	12.1	96.8	96	4.5	52.2	49.6	7.1	2.7
Whitley	5.7	98.9	101	4.4	53.0	45.2	11.5	3.1
State	9.5	108.4	109	4.2	40.1	45.8	11.5	4.8
OHIO								
Defiance	11.0	113.7	109	4.2	39.8	49.4	3.7	1.3
Paulding	6.0	131.4	107	3.9	29.8	51.9	9.1	3.0
Van Wert	4.6	101.3	72	3.8	43.5	48.0	15.2	16.2
State	13.6	98.1	106	4.5	43.5	47.8	9.3	4.0

Compiled from United States Census of Agriculture, 1930. Vol. I, II, Part I, III, Table IX, Part I, Table I & IV.



The relation of the dairy enterprise on these farms to the beef enterprise is indicated in the last three columns in Table 27. The number of milk cows was 45.8 and 48.0 percent of all cattle in Noble and Van Wert counties, respectively, while in Allen County the number of milk cows was 47.9 percent of all cattle.

It does not appear that the proportion that dual-purpose or beef-breeding cows are of all cows milked increases with the distance from the market. For example, in Allen and Adams Counties the percent that milk cows of dual-purpose or beef-breeding types are of all cows milked was 17.3 and 12.7 percent, respectively, while in Noble and Van Wert Counties (counties more distant) the proportion was 9.8 and 15.2, respectively. Such a condition would seem to indicate that the fluid milk producers are not concentrated nearby the marketing area. Milk production per cow varies widely among the counties around Fort Wayne as shown in Table 28. Milk production per cow per annum on all farms is only 4,455 pounds in Allen County while it is 4,943, 4,384 and 4,407 pounds for Adams, Whitley and Van Wert Counties, respectively.

Milk production per herd per day on all farms is only 56.1 pounds in Allen County, while it is 68.5, 52.8, and 46.0 pounds all farms in Adams, Whitley, and Van Wert Counties, respectively. On dairy type farms it is 106 pounds per herd per day in Allen County while it is 129.1, 113.5, and 108.6 pounds per herd per day in Adams, Whitley, and Van Wert Counties, respectively.

#### D. Production and disposition of milk.

##### 1. Production.

Adams County, Indiana with a production of 144,548 pounds per square mile has the largest production per square mile in the supply area, while Paulding County, Ohio, with a production of 73,667 pounds per square mile has the smallest production per square mile.

Column 1 in Table 28 shows the total milk produced in the counties comprising the Fort Wayne milkshed. It will be noticed that Allen County, produces the most milk mostly because it is larger than the other counties. Adams County produces the next greatest amount of milk largely because dairying is carried on in this county on a more intensive scale.

##### 2. Deliveries per day per dairy.

The deliveries of milk per day per dairy in the Fort Wayne

Table 28 - FORT WAYNE, INDIANA: Total production, production per square mile, per cow and daily per herd, and expenditure for feed per farm in selected counties which include the Fort Wayne Milk Supply Area, 1929.

State and County	Total Milk Produced	Milk Produced per Sq. Mile	Milk production per cow		Milk produced Daily per Herd		Annual expenditure for feed per farm	
			All Farms	Dairy Farms	All Farms	Dairy Farms	All Farms	Dairy Farms
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Dollars	Dollars
INDIANA								
Adams	48,712,808	144,548	4943.0	6007.6	68.5	129.1	175.15	191.49
Allen	63,085,481	95,439	4454.6	5179.3	56.1	106.4	148.67	187.16
DeKalb	35,642,485	96,331	4148.3	5150.1	50.9	101.3	118.01	149.57
Noble	41,686,049	99,967	4367.8	5011.4	57.9	116.1	155.95	132.02
Wells	42,006,717	115,087	4439.5	5570.0	54.8	108.7	191.21	141.51
Whitley	35,493,163	105,009	4383.5	4793.4	52.8	113.5	166.78	250.50
State	2,856,771,994	79,256	4313.0	5321.7	50.1	121.3	229.79	275.77
OHIO								
Defiance	39,770,812	98,200	4997.0	5760.4	57.8	108.9	193.54	198.11
Paulding	30,424,366	73,667	4773.9	5481.4	51.6	116.9	205.62	233.84
Van Wert	37,351,400	91,999	4407.2	5737.8	46.0	108.6	148.57	215.77
State	3,905,404,067	95,862	4604.5	5630.4	57.0	136.1	232.68	388.35

Compiled from the United States Census of Agriculture, 1930



market have not increased since the license went into effect as shown in Table 29. They are relatively small and so it is difficult for farmers to produce milk evenly.

### 3. Disposition of the farmers' output.

The proportion of the total production sold as whole milk on tall farms in the milkshed varies from 59.2 percent in Adams County, Indiana, to 33.9 percent in Van Wert County, Ohio, as shown in Table 30. The proportion of total production sold as whole milk on dairy farms in the supply area varies from 81.5 percent in Adams County, Indiana to 65.5 percent in DeKalb County, Indiana.

It is very significant that in no case is less than half of the milk produced on dairy type farms sold as whole milk while in the case of several counties, the percentage sold as whole milk ranges from 70 to 80 percent. Of all the whole milk sold in the Fort Wayne supply area, the dairy type farms sell only 15 percent of the total whole milk sold. (Table 31) 6/ The balance of the whole milk sold is produced on other types of farms which can be shifted to dairying or away from dairying according to its relative profitableness compared to other types of farming.

Tables 30 and 31 indicate that the amount and percent of milk sold as farm butter and as sweet cream are negligible and that the percent sold as butterfat ranges from 45.8 percent on all farms in Whitley County, Indiana, to 23.1 percent in Allen County, Indiana. Thus, although the milk production area closest to the market is not any more intensive than in other sections of the milkshed, more of the milk produced closest to the market is sold as whole milk.

### E. Relation of feed prices and other prices to the butterfat and milk prices.

The small amount of feed purchased on all farms and on dairy type farms (See Table 28, Page 50) in the milkshed indicates that most of feed fed to dairy cattle in the Fort Wayne milkshed is grown on the farm. Consequently, the relationship of beef cattle and hogs to the prices of milk and butterfat

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6/. Whole milk, as reported in the census, includes all milk sold from the farm as milk. This includes sales to such outlets as whole milk creameries, cheese factories, condenseries, fluid milk markets, and ice cream factories.

TABLE 29.- FORT WAYNE, INDIANA: Average deliveries of milk per day, per dairy in the Fort Wayne, Indiana Area, July 1934 -

Month	Deliveries per day, per dairy		
	1934	1935	1936
	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>
January		80.8	74.9
February		88.4	69.3
March		85.3	73.7
April		74.7	80.8
May		106.4	105.0
June		111.1	
July	97.2	92.2	
August	99.3	91.3	
September	106.5	84.8	
October	102.1	72.9	
November	86.7	67.6	
December	79.2	71.8	
Average	-	85.6	-

Compiled from reports of the Market Administrator.



Table 30 - FORT WAYNE, INDIANA: Disposition of milk produced on farms in selected counties as percent of the total milk produced in the Fort Wayne Milk Supply Area, 1929

State and County	Percent of total production sold as whole Milk		Percent of total production sold as farm butter	Percent of total production sold as cream	Percent of total production sold as Butterfat		Percent of total production used on farms
	All Farms	Dairy Farms			All Farms	Dairy Farms	
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
INDIANA							
Adams	59.2	81.5	.9	.2	23.3	8.1	16.4
Allen	50.1	70.2	6.4	.6	23.1	14.7	19.8
DeKalb	45.3	65.5	4.7	1.1	27.3	16.2	21.6
Noble	43.5	76.7	1.9	1.1	34.6	12.0	18.9
Wells	51.0	75.8	2.0	2.0	28.8	14.0	16.2
Whitley	35.6	67.0	1.9	.2	45.8	23.1	16.5
State	43.0	73.7	1.9	.7	32.8	15.7	21.6
OHIO							
Defiance	52.1	75.1	1.9	.1	29.4	12.5	16.5
Paulding	46.5	71.5	1.0	.5	30.7	15.6	21.3
Van Wert	33.9	72.4	1.7	.2	40.7	14.9	23.5
State	50.0	83.0	2.9	.7	27.2	7.7	19.2

Table 31. FORT WAYNE, INDIANA: Disposition of milk produced on farms in selected counties which include the Fort Wayne Milk Supply Area, 1929.

State and County	Total Milk Produced		Whole Milk Sold		Dairy Farms Sold		Farm Butter Sold	
	All Farms	Pounds	All Farms	Pounds	All Farms	Pounds	All Farms	Milk Equivalent Pounds
INDIANA								
Adams	48,712,808		28,827,759		10,409,913		24,725	455,165
Allen	63,085,481		31,590,629		9,755,556		218,040	4,013,918
DeKalb	35,642,485		16,135,475		5,085,369		90,064	1,657,996
Noble	41,686,049		18,147,918		6,731,074		43,514	801,053
Wells	42,006,717		21,440,359		8,182,522		45,878	844,572
Whitley	35,493,163		12,631,783		3,190,695		36,912	679,516
State	2,856,771,994		1,227,392,808		564,819,414		2,987,343	54,994,269
OHIO								
Defiance	39,770,812		20,701,980		6,743,509		42,213	795,175
Paulding	30,424,366		14,132,638		3,417,829		17,099	322,097
Van Wert	37,351,400		12,670,346		3,215,187		35,041	660,075
State	3,905,404,067		1,953,502,221		1,228,134,799		6,038,190	113,742,648

Compiled from the United States Census of Agriculture, 1930.



Table 31. FORT WAYNE, INDIANA: Disposition of milk produced on farms in selected counties which include the Fort Wayne Milk Supply Area, 1929.

State and County	Cream Sold		Cream Sold as Butterfat				Milk used on All Farms	
	All Farms	Milk Equivalent	From All Farms		From Dairy Farms		Milk	Pounds
			Butterfat	Pounds	Butterfat	Pounds		
INDIANA								
Adams	17,858	101,466	499,689	11,356,568	45,354	1,030,773	7,971,850	
Allen	70,232	399,045	641,240	14,573,636	39,872	2,042,545	12,508,253	
DeKalb	70,459	400,335	428,038	9,728,136	55,328	1,257,455	7,720,543	
Noble	76,751	436,085	635,302	14,438,682	46,403	1,054,614	7,862,311	
Tells	144,346	820,148	532,791	12,108,886	66,748	1,517,000	6,792,752	
Whitley	12,146	69,011	715,215	16,254,886	48,428	1,100,636	5,857,967	
State	3,614,293	20,535,756	41,255,624	937,627,818	5,276,959	119,930,886	616,221,343	
OHIO								
Defiance	4,973	28,913	502,652	11,689,581	48,365	1,124,767	6,555,163	
Paulding	23,747	138,064	401,992	9,348,651	31,963	743,326	6,482,916	
Van Wert	11,365	66,076	653,415	15,195,698	28,479	662,302	8,759,205	
State	4,471,572	25,997,511	45,682,890	1,062,392,790	4,899,579	113,943,698	749,768,897	

Compiled from the United States Census of Agriculture, 1930.

determine to a great extent whether or not there will be a shift to dairying or away from dairying.

In Tables 32, 33, and 34, the trends of prices of various feeds, cattle, hogs, and butterfat are shown. Feed prices, after having increased considerably in 1934, generally declined until the spring of 1936. However, because of the effects of drought conditions, the prices of feed, in July, 1936 increased 30 percent over July of last year and 20 percent over the average prices for 1935.

Butterfat prices did not increase in 1934 to the same extent as did feed prices but they increased in 1935 while feed prices were declining. During the first six months of 1936, butterfat prices tended to remain at about the 1935 level. During July, 1936 the price of butterfat increased about 40 percent over July, 1935, and approximately 15 percent over the average prices for 1935, largely because of drought conditions.

Pastures in the Fort Wayne supply area as of July 1, 1936 were only poor to fair, according to the Bureau of Agricultural Economics. By July 20 pastures in the Eastern Corn Belt Region, of which the Fort Wayne Milkshed is a part, were in a more serious condition than they were in the drought of 1934. 7/

#### F. Seasonal variations in milk production in the supply area.

The seasonal variation in milk production as measured by production per dairy per day illustrates the wideness of the seasonal variation in the Fort Wayne milkshed. The production per day per dairy in 1935 varied from 111.1 pounds per day in June to 67.6 pounds in November, or a variation of over 63 percent from high to low as shown in Table 29, Page 52. Such a wide variation in production accompanied as it is by a narrow variation in sales of whole milk results in large amounts of milk produced for the whole milk market being sold in surplus uses at certain times of the year.

#### G. Transportation.

The entire milk supply of the Fort Wayne market comes from within a radius of thirty-three miles. There are no country stations and all the milk is trucked into the city and the prevailing rate charged is 25 cents per hundred pounds regardless of

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7/ "The Present Drought Situation", Press Release U.S.D.A. July 21, 1936.



August 6, 1936.

Table 32. -- CHICAGO, ILLINOIS: Average feedstuff prices per ton, bagged, in carlots.

Year & month	Standard Spring Wheat Bran	Standard Spring Wheat Middlings	Cotton- seed Meal (41%)	Gluten Meal	Spring Wheat Flour Middlings	Linseed Meal (34%)	Number 1 Alfalfa Meal (medium)	Gluten Feed	White Hominy Feed	Soybean Meal	Average of 10 Feeds
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1934											
June	23.45	23.90	28.25	28.60	26.15	31.90	23.65	20.60	21.95	34.50	26.30
July	22.10	24.10	31.40	29.25	27.40	34.10	25.30	21.25	22.10	36.50 <u>3/</u>	27.35
August	25.20	26.20	39.35	35.45	30.30	44.00 <u>2/</u>	28.75	25.70	29.65	36.50 <u>3/</u>	32.11
September	24.55	24.90	38.30	38.20	29.80	46.35 <u>2/</u>	29.75	28.20	30.40	36.50 <u>3/</u>	32.70
October	23.70	23.90	35.80	38.65	27.50	41.30	28.80	28.65	27.85	38.50	31.86
November	25.43	27.00	42.65	40.10	31.00	40.90	28.50	30.10	31.90	38.80	33.64
December	29.20	31.70	43.05	42.20	33.40	44.00	29.00	34.10	36.50	41.20	36.44
1935											
January	28.20	28.70	40.00	40.70	30.15	44.30	29.00	33.70	33.50	40.70	34.92
February	28.15	27.50	39.00	37.60	30.05	40.25	29.00	31.85	31.53 <u>3/</u>	38.45	33.34
March	26.15	26.25	36.30	32.45	29.40	37.15	28.50	27.45	31.55 <u>3/</u>	37.10	31.23
April	27.75	28.75	36.78	30.45	30.75	35.00	28.10	24.65	29.60	33.80	30.56
May	27.50	31.19	35.93	28.45	33.19	35.50	32.50	25.45	31.00	33.20	31.39
June	22.50	26.19	32.17	27.70	30.00	33.13	28.81	24.45	29.88	31.70	28.65
July	19.95	22.35	30.15	26.65	26.70	26.60	24.45	22.25	28.50	29.06	25.67
August	18.44	20.31	26.95	23.95	25.06	23.88	25.00 <u>1/</u>	21.20	26.50	24.00	23.53
September	17.25	19.75	25.94	22.45	23.50	24.13	24.70 <u>3/</u>	19.95	27.25	22.85	22.78
October	17.95	19.20	29.05	26.30	24.05	27.80 <u>2/</u>	24.40 <u>1/</u>	22.00	26.80	25.62	24.32
November	18.13	18.19	28.26	28.08	21.00	27.50 <u>2/</u>	24.50 <u>1/</u>	23.58	24.63	24.40	23.83
December	18.65	18.90	27.95	29.20	22.95	27.00 <u>2/</u>	23.60 <u>1/</u>	23.75	22.80	25.50	24.03
Average	22.55	23.94	32.37	29.50	27.23	31.87	26.88	25.02	28.63	30.53	27.85
1936											
January	18.38	18.44	27.31	29.64	21.31	27.75 <u>2/</u>	24.00 <u>1/</u>	22.14	23.25	25.15	23.74
February	18.00	18.19	26.64	30.08	20.81	27.50 <u>2/</u>	24.50 <u>1/</u>	20.08	22.25	23.90	23.20
March	18.20	18.30	25.85	27.60	20.85	26.90 <u>2/</u>	24.50 <u>1/</u>	18.40	20.80	22.30	22.37
April	19.94	19.94	27.44	24.45	23.19	26.75 <u>2/</u>	24.00 <u>1/</u>	16.45	20.50	23.28	22.59
May	17.44	20.75	27.31	24.70	23.00	27.71 <u>2/</u>	23.25 <u>1/</u>	16.70	21.88	24.78	22.75
June	19.45	24.50	28.41	26.00 <u>3/</u>	27.30	31.16 <u>2/</u>	22.70 <u>1/</u>	17.90	24.20	26.10	24.77
July	28.83	31.33	37.42	34.00 <u>3/</u>	33.00	43.70 <u>2/</u>	26.00 <u>1/</u>	27.03	35.00	38.07	33.44

Compiled from reports of the Bureau of Agricultural Economics, Division of Hay, Feed and Seed.  
1/ Fine. 2/ 37% protein. 3/ Interpolated. 4/ Preliminary figures.



Table 33 - FORT WAYNE: Prices received by farmers in Indiana and Ohio for corn, oats, clover and alfalfa hay by months during the period a license has been in effect in the Fort Wayne Marketing Area.

Year and Month	Indiana				Ohio			
	Corn	Oats	Clover	Alfalfa	Corn	Oats	Clover	Alfalfa
	per bushel Cents	per bushel Cents	per ton Dollars	per ton Dollars	per bushel Cents	per bushel Cents	per ton Dollars	per ton Dollars
1934								
July	55	38	11.00	13.30	56	41	11.00	11.40
August	69	42	13.00	15.90	70	45	13.80	14.50
September	75	47	14.60	16.80	76	51	14.70	16.40
October	71	46	13.80	16.20	71	49	14.90	16.20
November	70	47	13.90	16.70	69	50	14.80	16.50
December	83	51	14.80	17.00	81	51	15.10	16.50
1935								
January	82	50	14.40	16.80	81	51	15.10	16.50
February	80	50	14.20	16.60	80	50	14.60	16.40
March	76	48	13.50	15.30	76	49	14.30	15.90
April	81	48	13.50	15.70	80	50	12.90	14.50
May	80	43	13.30	15.30	80	45	12.00	13.80
June	79	35	11.40	13.10	80	39	11.10	11.80
July	79	29	7.40	9.10	79	33	8.40	8.50
August	78	24	7.40	8.70	78	27	7.00	7.40
September	75	24	7.10	8.30	77	26	7.20	8.30
October	74	24	6.80	8.40	74	27	7.50	7.50
November	50	24	7.90	9.00	48	26	7.50	7.50
December	45	24	7.80	8.80	45	26	7.00	7.50
Average	73.25	35.25	10.39	12.09	73.17	37.42	10.38	11.30
1936								
January	46	24	7.80	8.90	46	26	7.00	7.50
February	48	25	8.00	9.40	49	27	7.50	8.00
March	48	25	8.10	8.80	49	27	6.90	7.70
April	49	23	8.10	8.80	51	25	7.00	7.50
May	53	23	7.10	8.10	55	25	7.10	7.50
June	57	22	7.20	8.00	58	24	6.80	8.00
July	79	31	8.30	9.60	78	33	8.10	9.80

Table 34. FORT WAYNE, INDIANA: Farm price of butterfat, cattle, and hogs in Ohio, and Indiana, by months.

Date	Farm price of butterfat per lb.		Farm price of Beef Cattle per cwt.		Farm price of hogs per cwt.	
	Indiana	Ohio	Indiana	Ohio	Indiana	Ohio
	Cents	Cents	Dollars	Dollars	Dollars	Dollars
1934						
July	21	21	4.90	4.65	4.45	4.45
Aug.	23	23	4.90	4.65	5.20	5.20
Sept.	23	23	5.40	5.10	6.50	6.20
Oct.	23	23	5.30	4.80	5.60	5.50
Nov.	26	25	5.05	4.60	5.30	5.20
Dec.	27	27	5.00	4.75	5.50	5.50
1935						
Jan.	29	29	6.40	5.70	7.40	7.50
Feb.	36	35	7.20	6.60	7.90	7.90
March	30	30	7.90	7.70	8.80	8.90
April	33	33	8.20	8.00	8.70	8.70
May	27	27	8.50	8.20	8.80	8.80
June	24	22	8.00	8.20	9.30	9.30
July	23	21	7.60	7.70	9.50	9.30
Aug.	23	22	8.00	7.70	11.30	11.10
Sept.	25	24	8.00	7.90	11.40	11.30
Oct.	25	24	7.40	7.60	10.30	10.40
Nov.	29	26	7.30	7.40	9.10	9.00
Dec.	32	32	7.60	7.60	9.10	9.30
Average	28	27	7.681	7.521	9.30	9.291
1936						
Jan.	32	32	7.70	7.50	9.60	9.50
Feb.	34	33	7.40	7.50	10.30	10.30
March	30	30	7.10	7.00	10.20	10.00
April	30	30	7.10	7.20	10.30	10.20
May	26	26	6.90	7.10	9.10	9.10
June	27	26	7.00	6.90	9.70	9.60
July	32	32	6.60	6.90	9.90	10.00

Compiled from reports of the Bureau of Agricultural Economics,  
Division of Crop and Livestock Estimates, and the  
Market Administrator.

distance covered.

Approximately fifty-five percent of the milk is trucked by contract haulers employed by distributors while most of the remainder is hauled by the distributors themselves. Only in a very few cases do producers haul their own milk.

#### H. Marketing Organization.

##### 1. Producers' organizations.

The Wayne Cooperative Milk Producers, Inc., organized in 1933, controls approximately one-half the milk supply of the Fort Wayne market and is the only producers' association in the market. It is a non-profit bargaining association, which guarantees a fluid milk market for its members at all times. Of a total of approximately 1,000 producers in the market, about 650 are members of the association.

##### 2. Handlers in the Fort Wayne, Indiana, Marketing Area.

There are approximately 26 handlers of milk in the Fort Wayne Marketing Area buying milk from producers. In addition there are 12 producer-handlers handling about 10 percent of all the milk in the marketing area.

### PART VIII.

#### Conclusions Relative to the Minimum Prices to Producers as Set Forth in the Proposed Order.

##### A. Class I price.

It is proposed in the Order that the Class I price be increased from \$2.00 to \$2.25 per hundred pounds, as established in the Amended License No. 64, June 19, 1935.

It appears that the proposed increase of 25 cents per hundred pounds in Class I milk is justified on the basis of the recent increase in butter prices, the poor pasture conditions and the high price of feed, all of which are results of the drought. Furthermore, industrial pay-rolls and business conditions are much better than a year ago in the Fort Wayne Marketing Area and consequently support an increase in the Class I price.



In the past month or two there have been increases in the Class I price in most large markets of the country because of the drought and it thus seems reasonable to approve the proposed increase in the price of Class I milk.

B. The Class II price.

The formula for Class II milk as described in the proposed order allows a premium of 20 cents per hundred pounds over the condensery prices in the area. It appears that this premium of 20 cents per hundred pounds is a reasonable premium (for milk used to produce cream for consumption as fluid cream) as this milk has to be of the same quality as Class I milk and produced about as uniformly.

C. The Class III price.

The proposed formula for Class III milk permits milk used in this class to be sold for approximately the condensery price in the area. It appears reasonable to sell as much of the surplus milk at the condensery price as there are facilities in the market to take care of its use.

D. The Class IV price.

The formulas for Class IV milk based on the Chicago 92-score butter price establishes a price that returns to the producer the butter-fat value of the milk plus a 10 cent allowance per hundredweight for the skim milk. The value of the overrun is returned to the handler for the cost of handling the surplus milk. Such a pricing for this class of milk appears justified because some of the handlers operating in the market do not have any equipment for using the milk as evaporated or condensed milk. They have in the past operated their businesses by manufacturing their excess milk into butter. If these handlers are to continue to handle the surplus milk of producers then it appears that as long as milk is delivered to them in excess of their needs as fluid milk and cream, the excess must be priced in relation to the value of the finished product which they are equipped to manufacture.

PART IX.

Equitable Apportionment Among Producers of the  
Proceeds of the Sale of Milk to Handlers.

A. Pooling of the proceeds.

The Agricultural Adjustment Act, as amended, provides for two methods of payments to be made to producers. The first of these is for all producers to receive a uniform price for milk of the same grade and

quality. The second of the methods provided is for producers of each handler to receive a uniform price for milk of the same grade and quality, which price would depend on the utilization of the milk by that particular handler.

There is provided in the proposed marketing agreement and order the first plan which has prevailed in the market since the introduction of the Federal program in the Fort Wayne Marketing Area. The plan is not new. It is simply an extension of the plan commonly used by each handler and by the cooperative association. If a creamery sold 75 percent of the milk received from producers as fluid milk and 25 percent in other uses, it would not pay 75 percent of its producers the full fluid price and 25 percent the surplus price. Such a method obviously would have been inequitable, Gaumnitz and Reed have shown that it is natural to expect that those producers who meet the health requirements and production standards required of the fluid milk producer are entitled to and must be given an equitable share in the fluid market or they will undertake to get it.

The pooling provisions of the proposed marketing agreement and order accomplish this end in an efficient and effective manner by pooling all the proceeds of sales to all handlers and then apportioning the money among producers in accordance with the amount of milk each producer delivers. By this plan the burden of the surplus milk which the market must carry in order that an adequate supply of milk be insured is distributed equally over all producers. The price received by producers is, under such a plan, independent of the utilization of milk by any particular handler and depends only on the utilization of milk by all handlers in the market. All producers share the responsibility of supplying an adequate supply of good quality milk for the Marketing Area and all should share equally in the market.

It appears that the lack of any efficient plan for the equitable distribution of the market among producers has been a principal cause of the unsatisfactory conditions in the Fort Wayne Marketing Area and has led to much destructive competition among both handlers and producers. The present plan does not contemplate the elimination of competition but seeks only to establish it on a firm basis. All the factors which handlers, producers, and consumers consider in bargaining for prices have been presented here so that all in the market might see them clearly.

A simple example will be sufficient to show how it is possible by such an inequitable distribution of the surplus for some handlers to pay their producers more than other handlers. Assume that the Class I price is \$2.00, the Class II price \$1.50, the Class III price \$1.30, and the Class IV price \$1.00. Assume also that the sales of Class I amount to



60 percent of the total sales, sales of Class II 20 percent, sales of Class III 10 percent, and sales of Class IV 10 percent. Then a group of producers in the market carrying its share of the surplus would receive per hundredweight as follows:

60 pounds as Class I	@ \$2.00	-	\$1.20
20 pounds as Class II	@ 1.50	-	.30
10 pounds as Class III	@ 1.30	-	.13
10 pounds as Class IV	@ 1.00	-	<u>.10</u>
Composite price per hundredweight		-	1.73

But if the group carried less than its share of the surplus, that is assuming that it sold 70 percent of its supply as Class I and none as Class IV it would receive:

70 pounds as Class I	@ \$2.00	-	\$1.40
20 pounds as Class II	@ 1.50	-	.30
10 pounds as Class III	@ 1.30	-	<u>.13</u>
Composite price per hundredweight		-	1.83

And, to digress a little, without a classified price plan handlers are able by the same means to cut the Class I price paid to producers and yet pay their producers a higher composite price than is paid to those producers who would then be compelled to carry more than their share of the surplus, as follows:

60 pounds as Class I	@ \$2.00	-	\$1.20
10 pounds as Class II	@ 1.80	-	.18
20 pounds as Class III	@ 1.50	-	.15
10 pounds as Class IV	@ 1.30	-	<u>.13</u>
Composite price per hundredweight		-	1.66

More than likely, however, in order to retain their share of the fluid milk sales and to maintain the prices to producers the other handlers would offer their milk at a lower price for fluid use and in this way the price to producers would be forced to a lower level and the quality and amount of milk jeopardized. The proposed plan attempts to eliminate such practices among handlers by requiring them to pay for milk according to the use made of it. The proposed plan also eliminates discrepancies among prices paid producers because of an inequitable distribution of the burden of the surplus.

Competition is not eliminated for producers may make additional gains for themselves through superior quality and efficiency as the prices established are only minimum prices. Handlers still must compete with



each other but now on the basis of efficiency of handling milk and not on any gains made by purchasing their milk more cheaply.

B. Mechanics of the computations.

The actual mechanics of computing the total value of the pool are provided in article VI and sections 1 and 2 of article VII of the proposed marketing agreement and proposed order.

The provisions of article VI relate to those handlers who are also producers. Such producer-handlers who sell only milk produced on their own farms are excluded from the computations of the pool. But if such a producer-handler purchases milk from other producers then the milk so purchased must be classified and paid for as other handlers pay for milk. Two options are open to the producer-handler. He may either pool all his milk or he may pool only that milk purchased from producers by apportioning such purchases among his total Class I, Class II, Class III, and Class IV milk.

Paragraph 3 of section 1 of article VI provides that if this second option is chosen the sales of milk to other handlers shall be considered to be Class IV milk and that in the computations of the value of milk to the purchasing handler credit shall be given for having paid only the Class IV price but that he shall be charged according to the use made of the milk.

A justification for the handling of the milk of producer-handlers in this way is presented in a following section.

Article VII of the proposed marketing agreement and proposed order is purely administrative in nature but necessary in order to set forth definitely the procedure by which the market administrator is to translate the class prices into uniform prices to all producers.

Section 1 of this article provides for the computation of the value of the milk in each class of each handler to determine the total obligations to producers for milk purchased. This is done by combining into one total the obligations computed for all handlers. Thus is made up the total market pool on the total amount of money to be distributed by means of the uniform prices. At the present time and until January 1, 1937, the uniform price to be paid producers will be determined by dividing the total amount of the market pool by the amount of milk delivered by producers.

C. Base-rating plan proposed to be effective January 1, 1937.

In the developing of any plan for selling milk to handlers and for paying the proceeds of such milk to producers a very careful and gradual approach must be made to insure that no inequities are introduced. It has been the experience in many milk markets that a base rating plan can be introduced only after the market has been accustomed to working on a cooperative basis and a full understanding had of the problem involved in the marketing of milk in the market. The Fort Wayne milk market has been operating under a Federal program for over two years and much more stabilized marketing conditions have resulted. With the experience behind the factors operating in the market, we feel now that a base-rating plan should be introduced at the beginning of the year 1937.

The specific problem that the base-rating plan is designed to correct is that of the distribution of the burden of the surplus among producers. The straight pooling plan with no base-rating plan, although it distributes the burden of the surplus equally among all producers may not distribute it equitably. Some producers deliver milk all the year round, including the fall and winter months when production is expensive and the market needs milk. Other producers deliver no milk or curtail their production in the fall and winter months and produce more milk in the spring and summer months when production is relatively easy and inexpensive. The result is that there is a large seasonal peak in production in the spring and summer months even though there is no more milk consumed. The large amount of milk not consumed as fluid milk and cream must be used in the lower classes and the composite price is lowered for all producers including those who had delivered no more milk in the peak months than they had the rest of the year.

The inequity has been so important in many markets that for many years the base-rating plan has been used for the purpose of bringing about a more equitable distribution of the burden of carrying the surplus in the market.

On the basis of present information the base-rating plan was first introduced in the Baltimore, Maryland, market in 1918. Since that time the plan has spread widely. Table 35 shows the number of markets which have operated under such a scheme from 1918 to 1936. The use of the plan spread slowly but as it was recognized as an equitable plan for prorating the burden of the surplus it has gained momentum.

Table 35 - Milk markets operating with base-surplus plans 1/ as a part of the market structure, and date of institution of base-surplus plan on these markets, as of April 15, 1936.

Market	State	Effective date of license	Year base-surplus plan was established (approximate)
Philadelphia <u>2/</u>	Pennsylvania	Aug. 25, 1933	1919
Chicago	Illinois	Feb. 5, 1934	1929
Des Moines	Iowa	Feb. 14, 1934	1930 <u>3/</u>
Omaha-Council Bluffs	Nebraska-Iowa	Feb. 23, 1934	Feb. 23, 1934 <u>4/</u>
Evansville	Indiana	Feb. 26, 1934	1932
St. Louis	Missouri	Mar. 2, 1934	1930 <u>5/</u>
Boston	Massachusetts	Mar. 16, 1934	1930 <u>6/</u>
Lincoln	Nebraska	Mar. 17, 1934	1934
Wichita	Kansas	Mar. 17, 1934	Mar. 17, 1934 <u>7/</u>
Greater Kansas City	Missouri-Kansas	Mar. 17, 1934	1931
Detroit	Michigan	April 1, 1934	1923 <u>8/</u>
Newport	Rhode Island	April 1, 1934	1923
Providence	" "	April 1, 1934	1931
New Bedford	Massachusetts	" " "	1931
Fall River	"	" " "	1931
Richmond	Virginia	May 1, 1934	1930
Leavenworth	Kansas	May 16, 1934	May 16, 1934
Quad Cities	Iowa-Illinois	June 1, 1934	July 1933 <u>9/</u>
Louisville	Kentucky	" " "	1929 <u>10/</u>
Los Angeles	California	" " "	February 1926 <u>11/</u>
Ann Arbor	Michigan	July 1, 1934	1923 <u>12/</u>
Alameda County	California	" " "	1930
Battle Creek	Michigan	" " "	Sept. 1933
Bay City	"	" " "	May 3, 1934
Flint	"	" " "	" " 1934
Grand Rapids	"	" " "	1923
Kalamazoo	"	" " "	1933
Lansing	"	" " "	1930 <u>13/</u>
Muskegon	"	" " "	1930
Port Huron	"	" " "	July 1, 1934 <u>14/</u>
Saginaw	"	" " "	1927
Baltimore	Maryland	Aug. 1, 1934	1918
Savannah	Georgia	Aug. 16, 1934	1929
Tulsa	Oklahoma	Aug. 21, 1934	Nov. 11, 1934 <u>15/</u>
San Francisco	California	Oct. 2, 1934	1930
Southern Illinois	Illinois	Nov. 1, 1934	1932
Atlanta	Georgia	Dec. 1, 1934	1932 <u>16/</u>
San Diego	California	Feb. 1, 1935	1932
Washington	Dist. of Columbia		Mar. 1, 1924

Compiled in most cases from transcripts of hearings for proposed marketing agreements for milk.

1/ Sponsored in every case by a cooperative association of producers in the market.  
(Continued)



- 2/ Operating under the "old" license policy.
- 3/ Base-surplus plan dropped from license December 5, 1934.
- 4/ Apparently no base-surplus plan prior to the license.
- 5/ Base-surplus plan discontinued under license as of November 16, 1934.
- 6/ There had been in effect for several years another plan prior to the present one.
- 7/ No base-surplus plan prior to license.
- 8/ Horner, J.L., Michigan State College, Special Bulletin No. 170, page 31.
- 9/ Abandoned in March 1934. Added to license September 1, 1934.
- 10/ Introduced about 1929 but discontinued in fall of 1930. Reestablished in later years.
- 11/ Source: U.S.D.A. Technical Bulletin No. 179, Cooperative Marketing of Fluid Milk, by Hutzler Metzger.
- 12/ Abandoned after several years. Reestablished in 1930.
- 13/ Operated only temporarily. Effected again in June 1934.
- 14/ The base-surplus plan had been used over a small part of the market for several years previously.
- 15/ Established as a license feature November 5, 1934.
- 16/ Two early attempts failed. Reestablished in February 1934.

In 1929 only 11 markets had such a plan but in 1933 the number had increased to 28 and in 1936 there are approximately 35 markets using such a plan. The development has not been limited to any one section of the country but is used in at least seventeen different states from Massachusetts to California and Georgia to Michigan.

The principle of the base-rating plan is not entirely new in the Fort Wayne market. The pricing arrangements of one handler during a period prior to the introduction of a Federal program in this market incorporated such a plan for purchasing milk.

Section 4 of Article VII of the proposed marketing agreement and proposed order sets forth a base-rating plan proposed for the Fort Wayne market to be made effective January 1, 1937. The base of each producer is to be calculated as follows:

1. Effective for the year 1937 divide the total milk deliveries in bulk to handlers during the year 1936, excluding the months of May and June, by the number of days on which deliveries were made and take such a percentage of the result as will make the total of all figures approximately equal to 115 percent of the average Class I and Class II milk per day sold during the year 1936 by all handlers to whom such milk was delivered.

By this method of calculating bases total bases are kept within 15 percent of the fluid milk and cream sales and the surplus above this amount is distributed equitably among producers. The plan proposed for 1937 eliminates from the calculation of bases those two months of May and June when the amount of milk produced in 1935 was considerably in excess of the amount used for fluid milk and cream. (See Table 10.)

After 1937 it is proposed that bases be established on the basis of the average deliveries of producers during the four months that his daily deliveries were lowest. Such a plan is proposed because it appears that a producer should not be entitled to a larger share of the market at any time during the year than that share of the market which he contributes in his lowest months of production.

A third provision in the proposed base-rating plan is that of reducing a producer's base if for two consecutive periods his deliveries fall below 85 percent of his base. In such cases it is proposed that the base be reduced to the average daily deliveries of the producer during those two months. The producer's base represents his share in the fluid milk and cream market and such a share was

earned by him on his past performances. If currently he cannot be depended upon to produce his share as is indicated by his dropping below 85 percent of the base for two months, then his share should be reduced to what he has indicated he can deliver, namely, his average daily deliveries in those two months.

How the base-rating plan operates might be shown by a simple example.

Thus suppose a market consisting of these producers, A, B, and C. A's base is 150, B's base is 100, and C's base 75. Actually A supplies 200, B 100, and C 100 so that the total base milk delivered was 325 and the total milk supplied, 400. Suppose that there are only three classes of milk in the market, Class I at a price of \$2.00, Class II at \$1.50, and Class III at \$1.30 and suppose further that 200 was used as Class I, 100 as Class II, and 100 as Class III. Thus the total amount of the pool would be:  $200 \times 2.00 + 100 \times \$1.50 + 100 \times 1.30 = \$680$ .

The first calculation is that of determining for each producer the amount supplied in excess of his base and to pay for this at the Class III price, \$1.30. This producer A supplied 50 units in excess of his base, B supplied nothing in excess of his base and C supplied 25 units in excess of his base. So producer A is paid \$65 and C \$32.50 which makes a total of \$97.50 to be paid for excess milk. This amount subtracted from the total pool leaves \$582.50. Dividing this amount by the amount of base milk gives a blended price of \$1.79. A is then paid \$1.79 for 150 and \$1.30 for 50 making a total of \$333.50. B is paid \$1.79 for his 100 units or \$179.00. C is paid \$1.79 for 75 units and \$1.30 for 25 making a total of \$166.75.

These results may be compared with what the producer would receive under a composite price plan. The total pool would be exactly the same, \$680. The composite price would be \$1.70. A would have received \$340.00, B would have received \$170.00, and C would have received \$170.00. By the simple pool B's share of the market was reduced even though he had delivered in accordance with the need of the market for fluid milk and cream.

The sole purpose of the base-rating plan is to so distribute the burden of the surplus that all in the market share it equitably. The bases are to be calculated according to the provisions of this proposed marketing agreement and order so that there is no discretion to the market administration.



PART X.

Other Provisions of the Proposed Marketing Agreement and Proposed Order for the Fort Wayne, Indiana, Marketing Area.

The remaining provisions of the proposed marketing agreement and proposed order are necessary for defining more explicitly and making effective the classification and price provisions previously discussed.

A. The Fort Wayne, Indiana, Marketing Area as defined in the proposed marketing agreement, and proposed order, the marketing area includes the territory within the corporate limits of Fort Wayne, Indiana, as well as the suburban area within a radius of four miles of the corporate limits of Fort Wayne, Indiana. This area is intended to include all the areas which are affected by the same supply and demand conditions and, from this point of view, constitutes one market. It is also the marketing area as defined by the Indiana Milk Control Board.

The population of about 125,000 people is largely industrial, engaged mainly in producing farm machinery and electrical equipment. The prosperity of the area depends to a large extent on the prosperity of these industries, which are dependent on the prosperity of agriculture in the surrounding area and in the middle west.

The sanitation requirements as established by the Fort Wayne Board of Health in General Ordinance No. 1092, passed on June 20, 1922 and as amended in the General Ordinances Numbers 1648, 1337 and 1649, regulate the production and handling of milk for sale in Fort Wayne, Indiana. All the milk sold in the City of Fort Wayne as fluid milk and cream must meet the same health requirements.

The marketing area defined as it is, includes all the area in which operate all those handlers who are in competition with each other for the sale of milk from producers as defined in the proposed marketing agreement, and proposed order. The area defined represents the market where the factors of supply and demand determining the price of milk to producers operate. As most of the handlers sell milk in the City of Fort Wayne, all of the milk entering the marketing area is of such similar quality that all enters into competition for the market.

## B. Report of handlers.

Article V of the proposed marketing agreement and proposed order sets forth three types of reports which handlers are required to submit and provides for the verification of these reports. The necessity for all these reports and for their verification becomes apparent with the realization of the nature of a milk market and practical operating problems which arise in making effective the class price in the payments to all producers of uniform prices which reflect the utilization of milk by all handlers.

Section I requires handlers to submit reports on or before the fifth day after the end of each delivery period, showing in such detail and form as the market administrator discovers best fits the particular conditions, the information as to all milk or cream received by handlers and the utilization of such milk. With this information before him, the market administrator is able to determine for each handler the classification of the milk, the total payment to be made to producers therefor, and, after combining the total payments of all handlers, the uniform price which will distribute such total amount of money to all producers who delivered the milk to all handlers.

Section 2 provides for other reports with respect to producers delivering milk to a handler. These reports enable the market administrator to secure needed information with respect to producers after a handler has newly become a party to the agreement or subject to the order, or to request information not already in his hands, which is needed for full knowledge in order to effectuate and to determine the effects of the order in relation to the policy of the Act. The second report provided for under section 2 requires that each handler report to the market administrator upon first receiving milk from any producer who has not previously shipped milk to that handler, in order that the market administrator may keep his records up to date with respect to the producers delivering to each handler.

Section 3 provides for the regular reporting by handlers of their payments to producers for each delivery period in the form of a copy of the handler's producer payroll. Such a report expedites the routine checking of compliance with the marketing agreement and order and provides in an economical way the information necessary for the market administrator to maintain adequate producer records.

Section 4 provides that each handler shall permit the market administrator to verify the information contained in all reports; the importance of routine verification of all reports is readily understandable in view of the intricate and detailed transactions which are inherent in the milk business. Where errors both willful and accidental may so readily creep in and affect the returns to producers, successful operation of a marketing agreement and order will depend to a large extent upon the extent to which the market administrator assures himself of the correctness of the figures supplied him in the reports and of the correctness of the sampling, weighing and testing, for butterfat of the milk which is delivered by producers. Such routine verification is thus extremely necessary for the effectuation of the provisions of the marketing agreement and order.

#### C. Payments to Producers.

In Article VIII are set out the details as to the time and method of payment to producers by handlers. Each handler is notified by the Market Administrator on or before the 10th day after the close of the pay period as to the composite price to be paid all producers. Five days are then allowed the handlers to make out and mail these checks to producers.

Until January 1, 1936 the price to producers will be a composite price for all milk but after that date there shall be announced a blended price to be paid for base milk and an excess price to be paid for all milk delivered in excess of base. Hence, in Paragraph 1 of Section 1 of the article, when no bases are established until January 1, 1936, there will be no milk delivered in excess of base and the prices announced by the Market Administrator will apply to all milk. The same explanation applies to Paragraph 2.

Paragraph 3 provides that a producer who did not regularly sell milk during a period 30 days preceding the effective date of the introduction of the plan, to a handler or person within the Marketing Area still be paid the Class III price for a period of approximately two full calendar months. The provision allows the producers the same prices as can be obtained in alternative outlets in the area. The period of about 60 days appears to be a length of time for the producer to indicate that he is willing to accept the responsibilities of supplying milk as it is wanted, to the marketing area.



Paragraph 4 of this section provides for the clearing through the Market Administrator of money which, when paid or received, as the case may be, by each handler, balance his payments to producers according to the provisions of Paragraph 1 with the total value of his milk as computed in Section 1 of Article VII.

The result is the same as if each handler had paid to the Market Administrator the full value of his milk computed in accordance with Section 1 of Article VII and the Market Administrator paid producers in accordance with Article VIII, as discussed above.

In the plan set up by which handlers shall pay producers, there is a contingency that not all handlers will make the portion of the payments to producers through the Market Administrator, as provided in Paragraph 4 of Section 1 of Article VIII. To cover such a contingency the Market Administrator is authorized in Article VII, Section 2, Paragraph 4 to withhold from the rate per hundredweight an amount between four to five cents. This withholding of money is not a deduction but simply a deferring of the full payment until all the money is sure to be on hand. Paragraph 5 of the same section and article provides for the distribution of all money in the Market Administrator's hands for producers, accumulated under the provisions of Paragraph 4 after all payments have been made to handlers in accordance with Paragraph 4 of Section 1 of Article VIII. It is important to consider the need of provisions in light of the practical operation of the proposed plan. Inevitably, some reports of handlers will be late, some payments will fail to reach the Market Administrator on time, and errors will be made in both reports and payments. These three provisions give the Market Administrator a means by which he may meet the practical problems which will arise in connection with the pool and still preserve practical equity in the distribution of money as between producers.

#### D. Producer-handlers.

The extent to which the handling of milk of producer-handlers is regulated is presented in Sections 1 and 2 of Article VI and Section 3 of Article VII of the proposed marketing agreement and order. The mechanics of the calculations have been described in the previous sections. In effect all bottled milk sold by such handlers is to be excluded from regulations. If a producer-handler purchased milk from other producers, then he is to be allowed to have deducted 95 percent of his production from his Class I and Class II milk and the remaining 5 percent from his Class III milk.

The reasons for giving the option for regulating the milk of such handlers in a different way than the milk of other handlers are many. Chief among them are the following:

1. Market acceptance of producer-handlers.
2. Difficulty of recognizing in any other way the particular advantages that should accrue to a producer-handler due to his
  - a. nearness to market,
  - b. uniformity of production,
  - c. adjustment of production to the changes in demand.

The proposed plan thus seems to give adequate consideration to the producer-handlers who are peculiarly circumstanced and who serve markedly different type of markets than the regular bulk producers.

E. Inter-handler sales and sales to non-handlers.

Section 2 and 3 of Article III provides that milk sold by a handler to another handler or non-handler shall be presumed to be Class I milk provided that, if such selling handler submits proof satisfactory to the market administrator that such milk was actually sold or used by the purchasing handler or purchasing person other than as Class I milk, then, and in that event, such milk shall be classified in accordance with its actual use.

One of the fundamental objectives of the proposed marketing agreement and proposed order is that all handlers shall pay uniform prices for milk according to the utilization of such milk. The routes of milk from producers to consumers are so intricate and varied, and the milk passes through several handlers, that as a practical necessity the milk must be classified at some focal point in the route. In this way only can the market administrator be assured that all handlers are paying for milk according to the use which is made of it. Most of the inter-handler sales are fluid milk sales so that it is reasonable to presume that all sales unless proven otherwise are Class I. Provision is made, however, that if such milk is used as Class II, Class III, or Class IV, then the selling handler can, upon submitting proof satisfactory to the administrator, pay the Class II, Class III, or Class IV price for such milk.



F. Definitions.

1. "Person" means any individual, partnership, corporation, association, or any other business unit. In the milk industry, practically all types of business organization are to be found. Hence, in order that all handlers subject to regulation in a milk market be regulated, it is necessary that all possible types of business organization be specified and the proposed marketing agreement and proposed order be made applicable thereto. If this were not done, some persons would be exempt from the provisions of the proposed marketing agreement and proposed order, even though the character of their business were such that they were subject to regulation. This would operate to cause the regulatory aspects of the proposed marketing agreement and proposed order to be discriminatory between different firms, and it is to obviate this inequitable result that "person" is so defined as to cover all types of business organization.

2. "Producer" means any person, irrespective of whether such person is also a handler, who produces milk in conformity with the health requirements applicable for milk to be sold for consumption as milk in the city of Fort Wayne. Milk which does not meet these requirements cannot legally be sold as milk in the city of Fort Wayne, hence the handlers of such milk should not be subject to any proposed marketing agreement and proposed order relating to such milk. But all milk which meets the health requirements is in actual or potential competition with all other such milk, and handlers of such milk must be subject to any proposed marketing agreement and proposed order for such to be effective in regulating the handling of such milk.

3. "Handler" means any person, irrespective of whether such person is a producer or an association of producers, wherever located or operating, who (a) engages in such handling of milk, which is sold as milk or cream in the marketing area, as is in the current of interstate or foreign commerce, or which directly burdens, obstructs, or affects interstate or foreign commerce in milk and its products.

One of the major objectives of this proposed marketing agreement and proposed order is to place all handlers on a comparable basis with respect to the purchase price they are required to pay for milk sold in the several use classes. In order to do this, all competitive factors in the market must be controlled and directed so that the market operates efficiently and losses engendered by unrestrained, unfair competition are eliminated. In order that this major purpose may be accomplished all persons involved in the



handling of milk and its products in interstate commerce, or so as to burden, obstruct, or affect interstate commerce, must be subject to the proposed marketing agreement and proposed order. All types of business setups and organizations, both physical and legal, are found. Hence, the definition of a handler must be broad enough to include all those persons who are in competition with each other so that no provision of the proposed marketing agreement and proposed order be discriminating in effect with respect to different firms or persons.

G. Market Administrator and provisions relating thereto.

1. Selection, removal and bond. In order that the Secretary can be assured that the administration of the proposed marketing agreement and proposed order is being carried out without any bias in favor of or against any group in the Fort Wayne Marketing Area, it is necessary that he appoint the Market Administrator. This procedure has been followed in all Federal milk licenses, due to the fact that it has proven more feasible than other types of administrative organization. The person selected needs to be one of wide experience and one with complete understanding of the proposed marketing agreement and proposed order. In order further to insure unbiased administration of the proposed marketing agreement and proposed order, it is necessary that the market administrator, selected by the Secretary, be subject to removal by the Secretary and only by the Secretary. For further assurance to all concerned of the faithful and honest performance by the Market Administrator of his duties, the market administrator is required to execute and deliver to the Secretary a bond in such amount as the Secretary may determine, with surety thereon satisfactory to the Secretary.

2. Compensation. The Secretary, who selects the Market Administrator, should also be the one to determine a reasonable compensation for the market administrator he selects. The market administrator being necessary for the proper administration of the proposed marketing agreement and proposed order, his salary is considered an expense of administration.

3. Duties. In order that there shall be proper administration of the proposed marketing agreement and proposed order, the market administrator must:

a. Keep such books and records as will clearly reflect the financial transactions provided for in the proposed marketing

agreement and proposed order.

In order for the Secretary to be assured, and to assure producers and handlers of proper administration of the proposed marketing agreement and proposed order, the books and records of the market administrator must be subject to his examination at any and all times. Only by being so assured can the Secretary know definitely that the proposed marketing agreement and proposed order are effectuating the policy of Congress as stated in the Agricultural Adjustment Act.

b. In order for the Secretary to be informed, furnish such information and verified reports as the Secretary may request.

c. In order to assure that his duties, for which the Secretary is responsible, are being properly carried out by his employees, obtain a bond for each employee who handles funds entrusted to the market administrator under the provisions of the proposed marketing agreement and proposed order. Most of the money handled in the Administrator's office belongs to handlers or producers, and the bond would cover possible losses to them. This insurance being necessary to the proper administration of the proposed marketing agreement and proposed order, the expense of such bond should be a part of the expense of administration.

d. Publicly disclose, except as otherwise directed by the Secretary the name of any person who has not:

(1) Furnished security pursuant to Article XI of the proposed marketing agreement and proposed order. A producer, if his payments are to be insured by the provisions of Article XI of the proposed marketing agreement and proposed order, is entitled to know and must know if the handler of his milk has not met the terms of said article. If this information is not disclosed to the producer, he might assume that the handler of his milk has filed security and that his payments are being insured and it is the administrator's duty to clarify the situation. In this way only can the administrator fulfill the responsibility he has of assuring producers that the payments for their milk are insured. It is equitable also to disclose to handlers the names of those handlers who are not supplying their producers the same protection as those handlers who have filed security.

(2) Made reports pursuant to Article V of the proposed marketing agreement and proposed order. These reports are the only way in which the administrator can determine in a reasonable length of



time sales made by each handler in each class, etc. These reports are necessary in order that prices to producers be computed by the market administrator and the purpose of the proposed marketing agreement and proposed order be effectuated. If the handler pays his producers without filing these reports, other handlers and also the producers should be informed that that handler had not filed reports and that the administrator could not determine if the handler had paid the correct price for his milk. If the producers are not so informed, they might assume that they had been paid the correct price. The administrator must make it known that he had not verified the prices paid and, therefore, was not responsible for its correctness.

(3) Made payments pursuant to Article VIII of the proposed marketing agreement and proposed order. The market administrator obtains information to compute the price that shall be paid by each handler and also obtains information as to what price was paid. With no notice to the contrary, a producer might assume that the price he received was the one to which he was entitled, when, in fact, it might be different from what the market administrator had computed as being correct. Because the producer might make such an incorrect assumption, the market administrator must notify such producers that the prices paid by the handler were not those computed by the market administrator. All handlers will be in the same competitive position only if they pay the price as computed by the administrator. The other handlers in the market in order to be on equal competitive terms should know the names of those competitors who have not paid the same price for their milk (subject only to adjustments) as they have.

H. Deductions for marketing services (Article IX of the proposed marketing agreement and proposed order).

The Agricultural Adjustment Act, as amended, states that the Secretary of Agriculture may provide for marketing services as follows, (Section 8c (5) (F) ):

"Providing (i) except as to producers for whom such services are being rendered by a cooperative marketing association qualified as provided in paragraph (F) of this subsection (5) for market information to producers and in the verification of weights, sampling and testing of milk purchased from producers and for making appropriate deductions therefor from payments to producers. . . ."

The types of service to be provided are specifically set forth, namely, checking of weights, sampling and tests of milk, and market information. The former has a direct bearing upon the size of payments



received by producers, and, in turn, the stability of the market structure; the latter provides for the dissemination of such information to producers as will aid them in a better marketing of their products.

Article IX of the proposed marketing agreement and proposed order provides for market service to producers. In section (1) provision is made for a deduction of three (3) cents per hundredweight from the payments made to producers, such monies to be expended by the market administrator for market information and the verification of weights, sampling and tests of milk. Similarly, section (2) provides that if a cooperative marketing association is found to be qualified under the requirements of paragraph F, section 8c (5) of the Act, and is properly rendering the services to producers enumerated in Article IX, section (1) of the proposed marketing agreement and proposed order, then the monies deducted by handlers from the members of such associations shall be paid over to that association.

It is declared to be the policy of Congress, as stated in the Agricultural Adjustment Act, to recognize and encourage producer cooperatives. There is no restriction in the proposed marketing agreement and proposed order which would operate to the disadvantage of, or tend to supplant, their work. Rather, such services are encouraged by reason of a recognition that the cooperatives, due to a close relationship with their members, probably are in a better position to render these services to their members than is the market administrator.

Experiences of the cooperatives have demonstrated that the rendering of marketing services to their members is a desirable feature in the proper functioning of the market mechanism. Producers generally do not have available facilities to determine accurately the weight of their milk. Neither are they in a position to test precisely its fat content. Yet, without verification of the weights and tests as determined by the handlers, producers often question the accuracy of the prices paid them. Marketing services in the nature of check weighing and testing are thus rendered because the producers themselves desire that service.

Undoubtedly, spot checking of the purchases of milk of individual handlers by the market administrator would suffice in verifying weights and tests, and, in turn, the accuracy of price computations. However, the producers, as stated heretofore, desire more than this. Their primary concern is that of ascertaining, not the general accuracy of the weights and tests determined by handlers to whom they deliver milk, but of the exact weights and tests of their own deliveries.

Table 36

Proposed Budget for Administration and Market Services  
under the Proposed Marketing Agreement and Proposed  
Order for the Fort Wayne, Indiana, Marketing Area  
July 1, 1936 - June 30, 1937

	ADMINISTRATION	MARKET SERVICE
	<u>Dollars</u>	<u>Dollars</u>
Office Salaries	4,800.00	
Rent	360.00	
Telephone & Telegraph	198.84	
Light & Power	18.24	
Postage	148.35	63.57
Stationery & Printing	72.00	
General Expense	7.00	
Traveling Expense	42.00	
Auto Mileage	569.00	
Replacements & Repairs Equipment	25.00	
Salaries		1,812.00
Telephone & Telegraph		96.00
Auto Mileage		132.00
Market Information-Publication	117.01	50.15
	6,357.34	2,153.72
Estimated Income	7,930.60	2,877.24
Reserve or Surplus	1,573.26	723.52

The presentation of marketing information to producers has become a necessary adjunct to an intricate marketing process. With this information producers are better enabled to adjust their production and marketing to current market conditions. The United States Department of Agriculture regularly furnishes information to producers in the form of crop and livestock reports, outlook statements, etc. This service is maintained only because producers recognize it as indispensable.

The dissemination of current market information, such as price aspects of the market, local supply and demand conditions, etc., by the market administrator serves an identical purpose.

A summary of the proposed budget for the marketing service fund under the proposed order, for the period July 1, 1936 - June 30, 1937, is shown in Table 36. These figures indicate that a three (3) cent deduction is reasonable and adequate to cover the costs of those services which assure accurate payments to producers at the established prices, thus tending to aid in effectuating the policy of Congress as stated in the Agricultural Adjustment Act.

I. Expenses of administration (Article X of the proposed marketing agreement and proposed order).

The market administrator must necessarily incur many expenses in his operations. He must maintain a personnel sufficient to (a) compute periodically the uniform prices to be paid by handlers to producers and to determine the class prices to be paid by handlers each delivery period; (b) record and audit the sales and purchases report of handlers, and (c) provide for such miscellaneous work as contacts with producers, handlers and the parties in the market. The allowance of three cents formerly paid by the producers and now in accordance with the amended Act to be prorated among handlers appears to have been adequate. The proposed budget shown in Table 36 outlines the uses to which this money may be put. The cost allowed by the market administrator is limited to a maximum of three cents per hundred-weight and if found to be excessive will be reduced as to any delivery period. The bond required of the market administrator and periodic audits of his accounts give every reasonable assurance that the monies are properly handled.





THE PRICE STRUCTURE FOR MILK

Technical Paper No. 1, Dairy Section,  
Agricultural Adjustment Administration,  
United States Department of Agriculture.





# THE PRICE STRUCTURE FOR MILK

by

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and

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## Introduction

One of the most important and perplexing problems encountered in milk marketing is that pertaining to the classification of milk. This problem is merely one of many, although fundamental and probably the most important, that may and perhaps must be approached through a study of the price structure for milk.

This paper was written for use in connection with marketing agreements and orders for milk. However, numerous questions have arisen pertaining to the classification of milk, the price structure, and related problems, and it is for these reasons that this paper is made available at this time.

This analysis of the price structure has been developed under assumptions of competitive conditions. Numerous details have been omitted in the interest of brevity and in order that the discussion be suitable for general use. The analysis will be expanded as rapidly as possible, and the later phases of the work are to deal primarily with the price structure when the assumptions upon which this paper is based are varied.

The authors have received aid from several persons in the development of this paper. Dr. Warren C. Waite helped draft the paper in all but the latest stages of its development, and Dr. Harold B. Rowe contributed many valuable suggestions relative to the technique of the analysis. Others have made fruitful suggestions and have aided materially in editing the paper.

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## Part I

### THE PRICE STRUCTURE FOR MILK FOR THE COUNTRY AS A WHOLE

A complete analysis of the price structure for milk for the country as a whole would fill a rather sizable volume. However, for the purposes of this paper, it is unnecessary to devote a great deal of time and space to the development of such an analysis. All that is intended in Part I is to develop a rather general treatment of the price structure for milk for the country as a whole, in order that the analysis of the price structure for milk within a milk shed may be approached more satisfactorily.

An explanation of the price structure for dairy products for the country as a whole involves consideration of (1) the conditions affecting the demand for milk, and (2) the supply characteristics of milk with respect to the localization of particular phases of the industry and the interchangeability of milk between different dairy products. Likewise, an explanation of the price structure for milk within a particular area or a particular milk shed involves consideration of (1) the nature of the demand for the different products derived from milk, and (2) the conditions affecting the supply of milk.

A. The nature of the demand for milk. It is well recognized that the demand for any commodity is a composite of the demands of the different groups of people who are ready to purchase different quantities of it at different prices. Similarly, the demand for a product such as <sup>1/</sup>milk, which is used in the production of a number of different products, <sup>1/</sup> is

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1/ In 1932 the total volume of milk used in the manufacture of dairy products and used by the non-farm population as fluid milk and cream was distributed among the various uses as follows:

Product	Percent of total volume used
Butter - creamery and whey	45.6 <u>a/</u>
Other manufactured products	13.2 <u>a/</u>
Milk used by non-farm population as fluid milk and cream	41.2 <u>b/</u>
Total	100.0

a/ Compiled from estimates of the production of manufactured dairy products, Bureau of Agricultural Economics, U. S. Department of Agriculture.

b/ Compiled from Estimates of Consumption of Milk and Cream in Cities and Villages, Bureau of Agricultural Economics, U. S. Department of Agriculture.

the aggregate or composite demand for milk in all uses. Thus, although the different forms or products in which milk is used are competitive in the sense that each use competes with all other uses for a portion of the total supply of milk, and the derived demands are rival or competitive, in the aggregate they comprise the total demand for milk. The nature of the demand for fluid milk is discussed at length in Part III of this paper.

B. The supply characteristics of milk.

1. Localization of the industry. Although milk production is an important agricultural enterprise in practically every State in the United States, it nevertheless varies markedly between areas as to relative importance and is highly concentrated in certain areas. An important factor in this connection is the fact that the transportation system has developed so that certain areas possess a comparative advantage in the production of milk for use in the production of dairy products that are readily storable and transportable, and others have a comparative advantage in the production of milk for fluid consumption. Thus, the States of Iowa, Minnesota, Nebraska and Wisconsin produced 44.8 percent of the total volume of creamery butter produced in the United States in 1932 and 1933. Wisconsin and New York produced 64.8 percent and 62.1 percent of the total volume of cheese produced in the United States in 1932 and 1933, respectively. Of the total United States production of evaporated milk in 1933, Wisconsin and California produced 53.3 percent, and the five States of Wisconsin, New York, California, Illinois and Ohio produced 70.0 percent. <sup>2/</sup> In those areas wherein large urban centers are situated, notably the New England and Middle Atlantic areas, as well as in the territory immediately surrounding other urban centers, the larger part of the total volume of milk produced is utilized in the form of fluid milk and cream.

2. The interchangeability of the supply of milk between uses. The milk supply of the country is interchangeable between uses, especially so in the case of manufacturing uses. In general, there is little difference between the quality requirements for milk used in the production of evaporated milk, butter, cheese and other manufactured dairy products. In addition to the fact that milk is markedly interchangeable between the uses noted above as far as quality requirements are concerned, processing facilities for the different products are so intermingled geographically, and, in fact, are in many cases available in one plant, that the matter of the location of the producer with respect to processing facilities for the different products is usually not important in

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<sup>2/</sup> Manufactured Dairy Products, Bureau of Agricultural Economics, United States Department of Agriculture.



preventing producers from shifting their milk from one channel of disposal to another. Thus, should relative price conditions warrant, the producer can in most cases shift his milk from one use to another. In the case of those plants manufacturing two or more products, the producer does not have to shift his milk from one plant to another, the shift or change in the relative volume of milk entering the different uses being accomplished by the plant management, and for the same reason that would lead the farmer to shift his milk from one use to another.

The interchangeability of the supply of milk between milk produced for use as fluid milk and that produced for use in the production of various manufactured dairy products is not so marked as is the interchangeability of milk between the different manufactured products. This is due in large part to the fact that in most milk markets milk used as fluid milk must be produced in accordance with more stringent sanitary requirements than is the case with milk produced for use in manufactured dairy products. However, this factor operates, principally, to lengthen the period of time necessary for a producer to shift his disposal of milk from manufactured dairy products uses to fluid use. The producer, in order to shift from the production of manufacturing milk to the production of fluid milk, must equip his barn and follow the procedure with respect to sanitation that is specified in the health ordinances of the city or town in which he wishes to sell fluid milk. This involves additional expense in producing milk, but, if the farm price of fluid milk is sufficiently above the farm price of manufacturing milk, the producer will equip his barn and conform to sanitation regulations in order that he may sell fluid milk. Thus, although the degree of interchangeability of milk between fluid use and manufactured product uses is less marked than the degree of interchangeability of milk between the different manufactured product uses, producers can and do shift from the production of manufacturing milk to the production of fluid milk when price relationships warrant. Similarly, when the price of fluid milk declines to a point where it is not sufficiently high to cover the additional costs of producing milk for fluid consumption, producers discontinue the production of milk for consumption as fluid milk and produce milk for use in the production of manufactured dairy products.

C. Factors affecting the general level of the prices of dairy products.

1. Demand factors. Numerous factors influence the demand for dairy products, such as the volume of the money income of consumers, consuming habits, etc. Perhaps the most important of the factors affecting the demand for dairy products is the volume of money consumers have available for the purchase of goods. Thus, the prices of dairy products vary directly with the income of consumers (assuming constant supplies). The relationship between the index of the farm prices of dairy products and

the index of factory payrolls (taken as a measure of changes in the income of consumers) is shown in Figure 1. As was stated above, numerous factors affect the demand for milk. However, for the purposes of this paper, it is unnecessary to discuss them in detail.

2. Factors affecting the supply of milk. The changes in the volume of milk that will be forthcoming from a given number of cows due to changes in weather, pasture and crop conditions need no comprehensive treatment here, since it is obvious that sudden and wide variations in the weather, droughts and other unusual weather conditions that operate to reduce or increase the quantity and quality of feed relative to the number of livestock, all tend to cause variations in the supply of milk.

Aside from the factors noted above, changes in the prices of dairy products relative to the prices paid by milk producers for the articles used in milk production, as well as changes in the prices of dairy products relative to the prices of other farm products, affect the volume of milk produced. In the Middle West, for example, changes in the prices of competing farm products have an important effect on milk production. An increase in the price of beef, or a relative decline in the prices of dairy products, is sufficient to cause large numbers of farmers in this section, particularly in the area west of the Mississippi, to turn to raising beef steers and heifers and let the calves suckle the cows longer than was the practice before the change in relative prices. In addition, in numerous cases where more than one livestock enterprise is followed on the farm, a relatively larger volume of the feed available is fed to livestock other than milk cows when prices of alternative livestock products become favorable relative to the prices of dairy products.

D. Relationships between the prices of dairy products in different markets.

Since most manufactured dairy products are readily transportable, the price of a product such as butter tends to vary between markets by not more than the amount necessary to cover the cost of shipping the product (freight and handling costs) from one market to another. Thus, in Chicago, Illinois, situated in the large surplus butter-producing area comprising the East North Central and West North Central States, the price of butter is generally lower than in New York City by an amount sufficient to cover freight and handling charges from Chicago to New York City (New York City being located in a deficit butter-producing area). The decidedly close relationships between the prices of butter in different markets are shown in Figure 2.

The prices of cheese in different markets vary together (see Figure 3), partly for the same reasons as those advanced above with respect to butter and also because of the possibility of shifting from cheese production to the production of butter, which is more widely

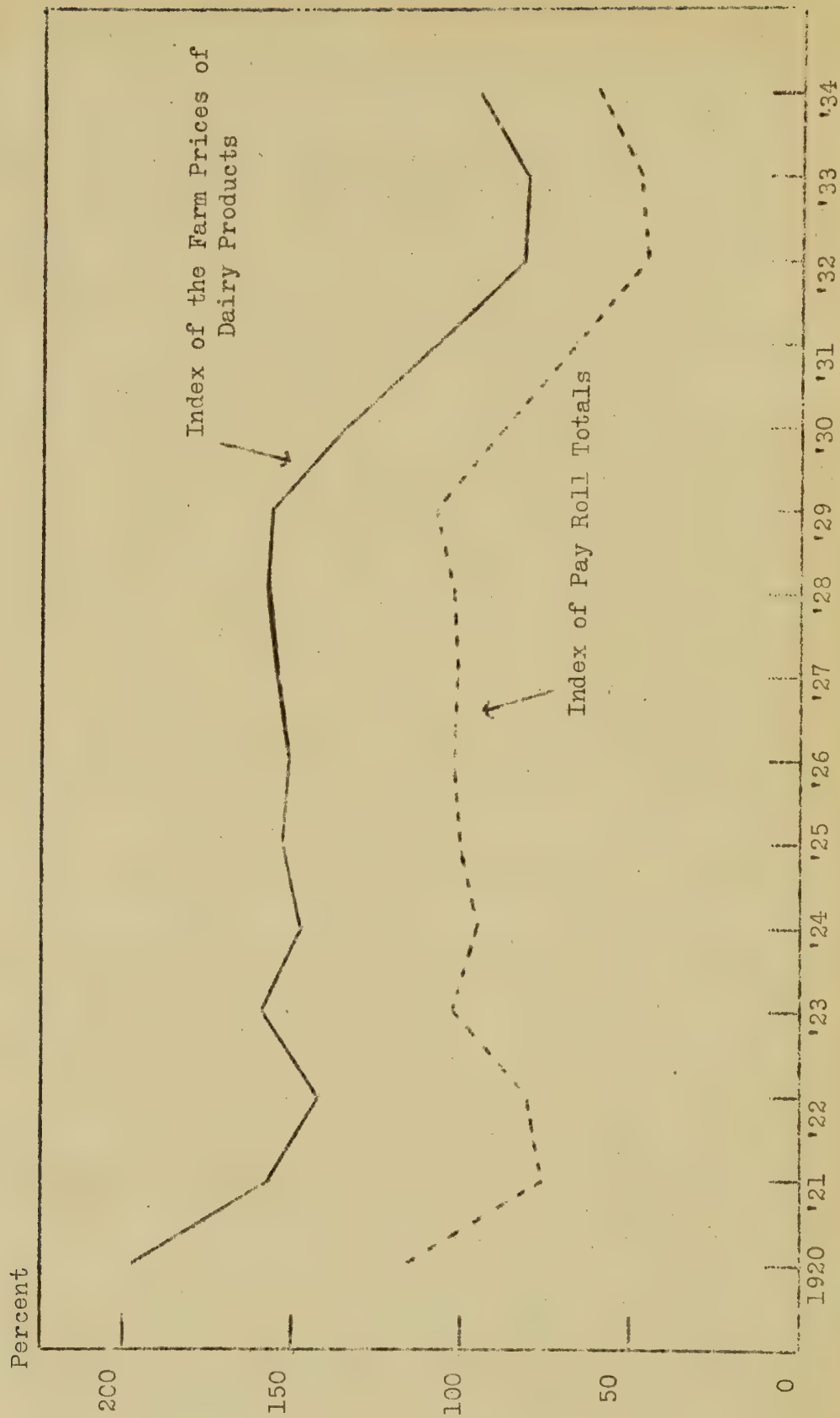


FIGURE 1. - INDEX NUMBERS OF U.S. FARM PRICE OF DAIRY PRODUCTS  
(AUGUST 1909 - JULY 1914 = 100)

AND INDEX NUMBERS OF PAY ROLL TOTALS IN MANUFACTURING  
INDUSTRIES (1923-1925 = 100)  
1920-1934



transported. The same relationships exist with respect to evaporated milk.

In view of the foregoing, it should be evident that the market for the most important manufactured dairy products is national in character and that the price of milk or butterfat used in the different products noted above in any particular area is closely associated with the price of milk so used in any other area.

E. Relationships between the price of milk used in different products.

As was pointed out in B above, the supply of milk is markedly interchangeable between uses in the case of milk produced for manufacturing purposes and to a lesser extent between fluid milk and manufacturing milk uses. This factor operates to establish close relationships between the price of milk in different uses, in the country as a whole, as well as within areas. (See Figure 4.) Thus, although the price of milk produced for use as fluid milk is generally higher in any particular area than the price of milk produced for use in manufactured dairy products (for the reasons advanced in section B and section C), and therefore the market for fluid milk in any particular area may be considered as a local market, the price of milk produced for use as fluid milk varies with the price of such milk in any other area and also varies with the price of milk produced for use in manufactured dairy products, both for the country as a whole and in the different sections of the country.



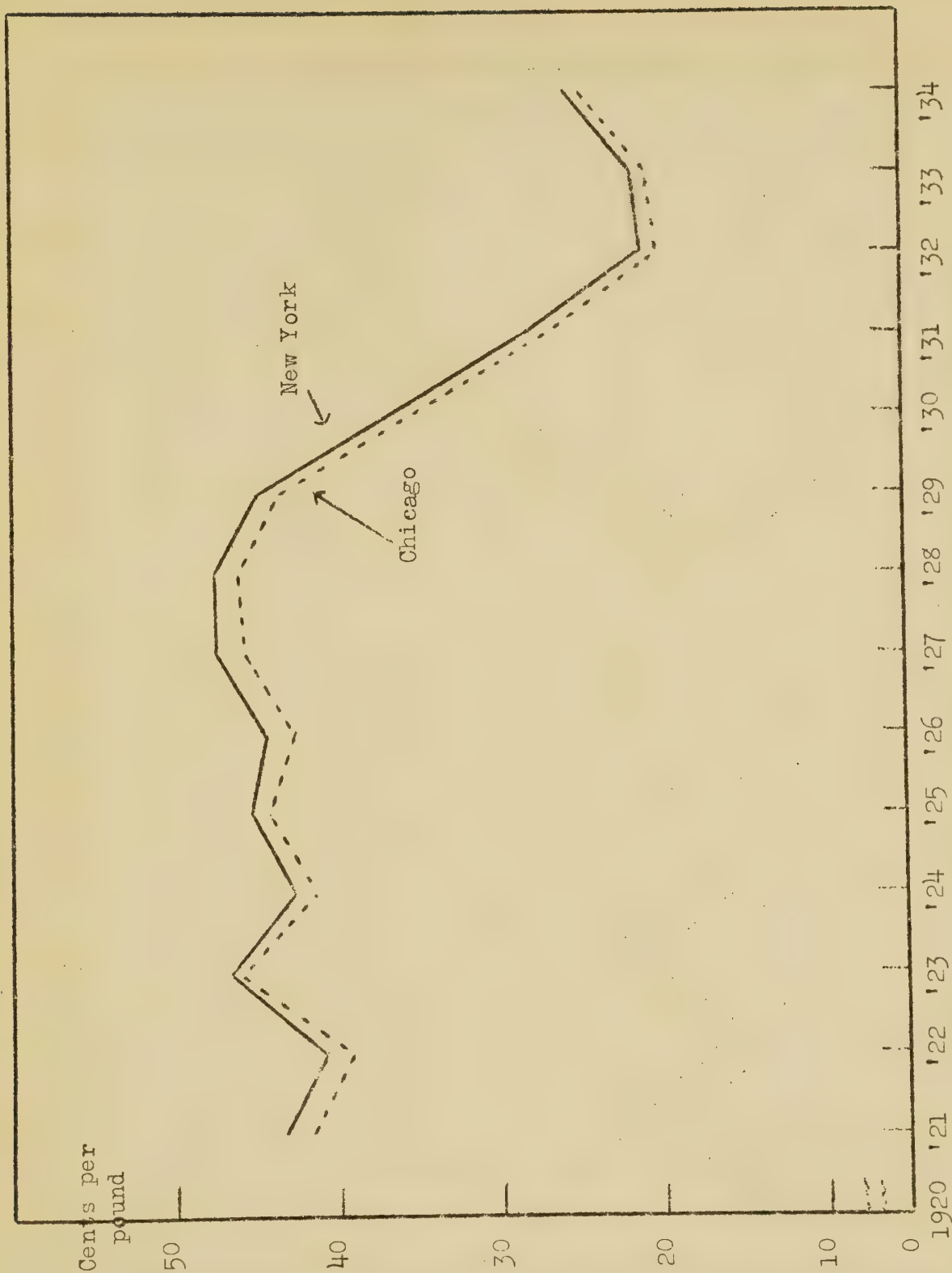


FIGURE 2. - WHOLESALE PRICE OF 92-SCORE CREAMERY BUTTER AT  
NEW YORK CITY AND CHICAGO, 1921-1934.



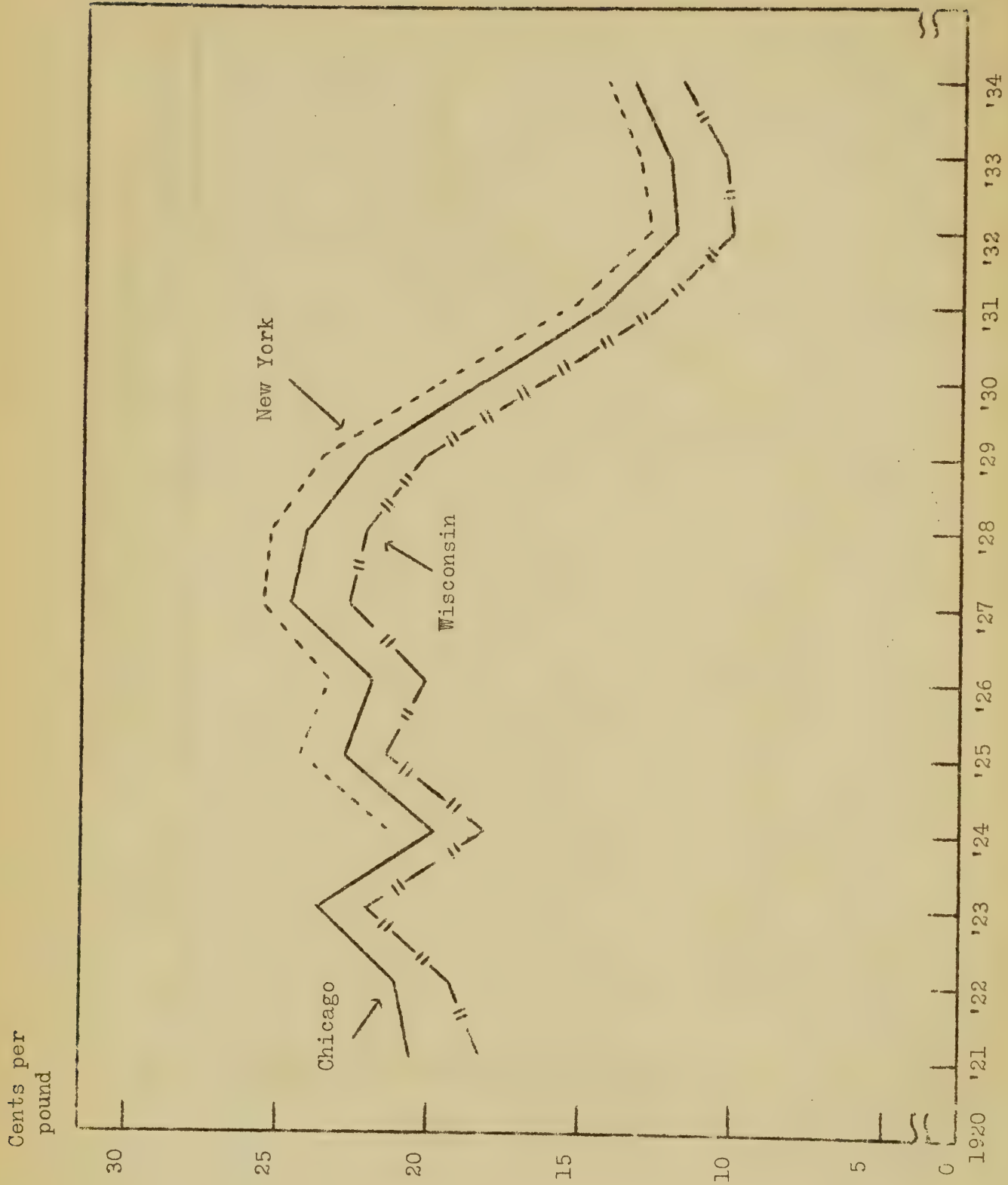


FIGURE 3. - WHOLESALE PRICES OF AMERICAN CHEESE - NEW YORK SINGLE DAISIES, CHICAGO SINGLE DAISIES, AND WISCONSIN TINS (ON THE WISCONSIN CHEESE EXCHANGE), 1921-1934.

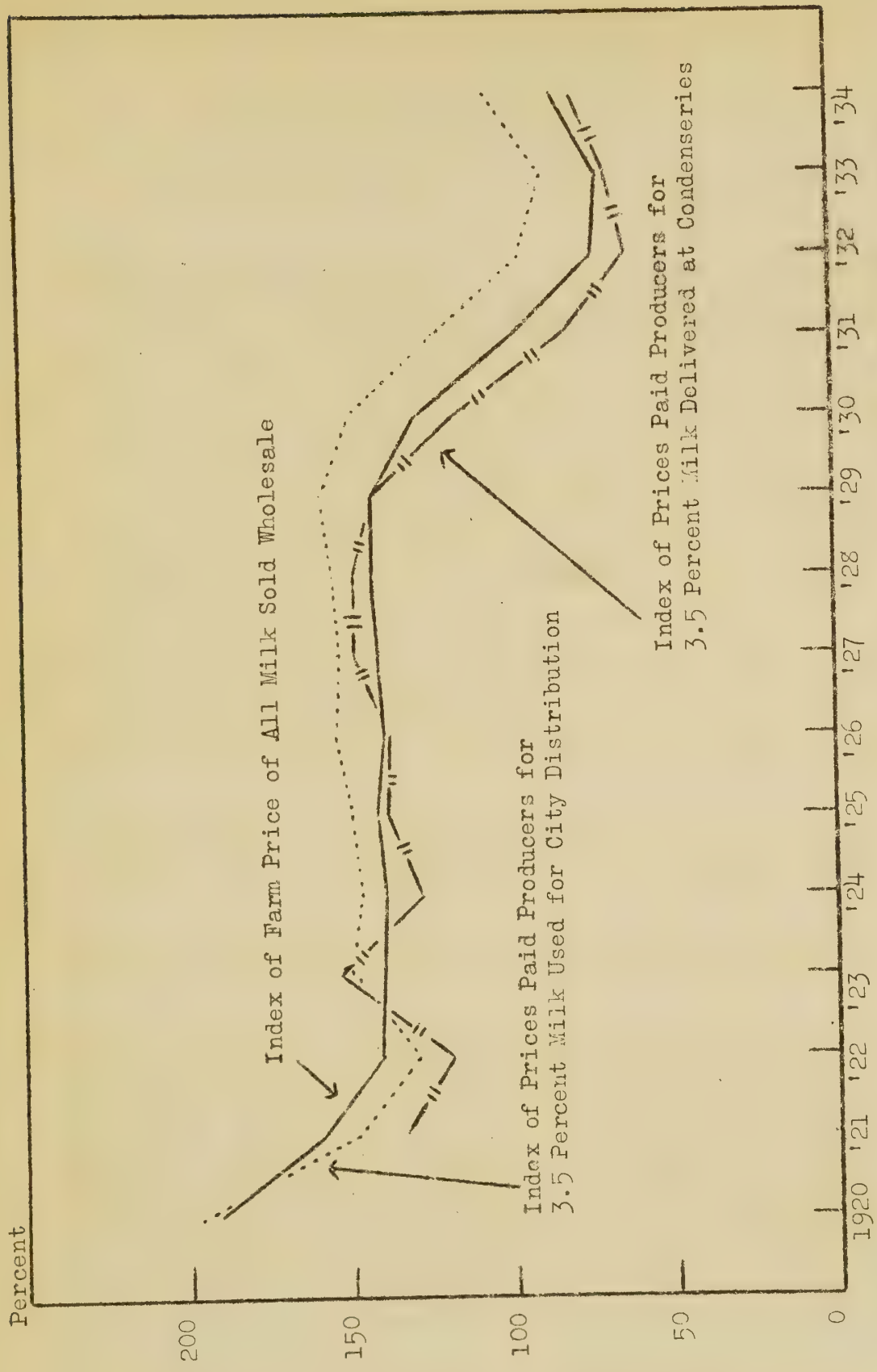


FIGURE 4. - INDEX NUMBERS OF FARM PRICES FOR ALL MILK SOLD WHOLESALE, INDEX NUMBERS OF PRICES PAID TO PRODUCERS FOR 3.5 PERCENT MILK DELIVERED AT CONDENSERIES, AND INDEX NUMBERS OF PRICES PAID BY MILK DEALERS FOR MILK TESTING 3.5 PERCENT BUTTERFAT, USED FOR CITY DISTRIBUTION AS MILK AND CREAM, UNITED STATES, 1920-1934. (1910-1914 = 100)

## Part II

### THE PRICE STRUCTURE FOR MILK WITHIN A MILK SHED

The terms under which milk is sold vary widely between markets. In some markets, usually small markets located within a surplus area or with few or no sanitation requirements, producers receive the same price f.o.b. the market for all milk, regardless of whether it is used for fluid milk, cream or manufactured dairy products. In other markets, while producers receive the same price for all milk sold, this price is a weighted average price which is computed by adding together the value of milk sold to distributors in accordance with a schedule of the prices for milk used for various products, and dividing the total sum so computed by the total volume of sales to distributors. In still other markets, producers receive two or more different prices for different portions of the milk which they deliver, a weighted average price for that portion of their milk sold as fluid milk and cream, and a lower price on the remainder, which is used in the production of manufactured dairy products. Again, producers may receive one price for that portion of their milk sold as fluid milk, another price for that portion sold as fluid cream, and still another price for that portion which is used in the production of manufactured dairy products such as butter, evaporated milk and cheese.

In this section, the relationships between the prices of milk used for different purposes f.o.b. city, and the farm price structure arising therefrom, are examined in some detail.

#### A. The price structure; uniform quality requirements - centralized processing.

For purposes of presentation, the price structure is examined in a hypothetical market, wherein factors operating to establish a differentiation in the prices of milk used in the production of different dairy products are assumed to be non-existent. One by one the factors operating to establish such differentiation in the prices of milk used in the production of different dairy products are considered, and thus the analysis of the price structure progresses from that of the highly simplified hypothetical market toward that of the most complex type of market. For purposes of analysis, therefore, it is assumed that:

1. There is a freely competitive market.
2. Local delivery costs and labor are the same for all classes of product.



3. There is no variation in the volume of milk consumed in different forms.
4. All milk, whether sold to consumers as fluid milk or other dairy products, is of uniform quality.
5. All milk is brought to the city in fluid form, there to be processed into the various dairy products.
6. There is no variation in the volume of milk sold per farm from day to day.

Under the conditions noted above, it is obvious that producers would receive the same per unit price for all milk brought to the market since each unit of the supply is interchangeable with every other unit. This would be true regardless of whether the milk were sold to the consumer as fluid milk, fluid cream, or manufactured dairy products.

However, it is well recognized that the butter and other manufactured dairy products equivalent of a unit of milk can be transported long distances at very low cost per product equivalent of a unit of milk as compared to the cost of transporting a unit of milk the same distance, and can be kept in storage for a relatively long period of time without appreciable deterioration in quality. Manufactured dairy products are composed largely of milk solids, or, stated differently, they are composed of one or more of the constituents of milk concentrated to a very much greater degree than in whole milk. Thus it is more economical to produce the finished product, such as butter, cheese, etc., at a distance from the market and transport the finished product to the market, rather than to transport whole milk to the market and there process it into the finished product (unless, of course, the demand for all the products of milk in the market can be satisfied from the volume of milk produced in the area immediately surrounding the market). For example, one hundred pounds of butter contain approximately 80 pounds of butterfat, and one hundred pounds of 3.5 percent milk contain 3.5 pounds of butterfat. Assuming that transportation costs per one hundred pounds of product are equal, the cost of transporting butterfat in the form of butter and in the form of 35 percent cream would be about  $1/23$  and  $1/10$ , respectively, of the cost of transporting butterfat in the form of milk. The reasons given above suffice to explain why manufactured dairy products are produced, in many cases hundreds of miles from the market, and shipped to the market in finished product form rather than being shipped to the market in the form of fluid milk and there processed into the finished product.

B. The price structure; uniform quality requirements - decentralized processing.

For the purpose of considering the manner in which the transportation factor affects the price structure for milk within a milk shed, the preceding assumption that all milk is brought to market, there to be processed into the several milk products, is now dropped and, instead, in addition to the remaining assumptions noted previously, it is assumed that:

1. All the milk which is produced within 100 miles from the market is needed to satisfy the demand for fluid milk.
2. All the milk which is produced in the area between 100 and 150 miles from the market is needed to meet the demand for fluid cream.
3. All the milk which is produced within the area between 150 and 200 miles from the market is needed to meet the demand for evaporated milk.
4. All the milk which is produced within the area between 200 to 400 miles from the market is required to meet the demand for butter.
5. Transportation costs vary in direct proportion to distances at the following rates per unit per mile:
  - (a) Whole milk - 1 cent per hundredweight.
  - (b) The cream equivalent of 100 pounds of 3.5 percent milk - 0.2 cent.
  - (c) The evaporated milk equivalent of 100 pounds of 3.5 percent milk - 0.1 cent.
  - (d) The butter equivalent of 100 pounds of 3.5 percent milk - .05 cent.
6. The farm value of skim milk exactly equals the cost of separating cream from milk.
7. The f.o.b. city value of the butter equivalent of 3.5 percent milk (it is assumed that the over-run is necessary to cover the manufacturer's margin) is \$1.00.

Under the above assumptions the f.o.b. city prices that must be paid for milk in order to secure the volume necessary to meet the demand for milk, as well as the f.o.b. city prices that must be paid for the cream equivalent and evaporated milk equivalent of 100 pounds of milk to

meet the respective demands, can be readily computed. Thus, with the f.o.b. market price of the butter equivalent of 100 pounds of 3.5 percent milk at \$1.00, the farm price of 100 pounds of milk which is converted to butter at a point 400 miles from the market is \$1.00 less the cost of transporting the butter equivalent of 100 pounds of such milk to the market, or 80 cents ( $\$1.00 - (400 \times \$.0005) = \$.80$ ). At a point 200 miles from market the farm price of milk used for butter is 90 cents ( $\$1.00 - \$.10$  transportation costs = \$.90). If milk is to be used in the production of evaporated milk at a point 200 miles from the market, the farm price of such milk must be 90 cents per hundredweight or else farmers will sell their milk to butter manufacturers rather than manufacturers of evaporated milk. The f.o.b. city price of the evaporated milk equivalent of 100 pounds of 3.5 percent milk will be the farm price of 100 pounds of 3.5 percent milk at a point 200 miles from the market, plus the cost of transporting the evaporated milk equivalent of such milk to the market, or \$1.10 ( $\$.90 + \$.20 = \$1.10$ ). Similarly, the farm price of milk used to produce cream at a point 150 miles from the city must be equal to the farm price of milk used to produce evaporated milk at that point, else farmers will sell their milk for use in evaporated milk rather than cream, and the f.o.b. city price of the cream equivalent of 3.5 percent milk will be the farm price of such milk at a point 150 miles from the market plus the cost of transporting the cream equivalent of 100 pounds of 3.5 percent milk from that point to the city, or \$1.25 ( $\$.95$  farm price at 150 mile-point + \$.30 transportation costs to market = \$1.25). Similarly, the f.o.b. city price of 3.5 percent milk will be the farm price of milk used for cream at a point 100 miles from the market plus the cost of transporting fluid milk to the market, or \$2.05 ( $\$1.05$  farm price at 100 mile-point + \$1.00 transportation costs to market = \$2.05).

Therefore, under the conditions assumed the prices for milk and milk products f.o.b. city would be as follows:

1. Fluid milk - \$2.05 per hundredweight.
2. The cream equivalent of 100 pounds of 3.5 percent milk - \$1.25.
3. The evaporated milk equivalent of 100 pounds of 3.5 percent milk - \$1.10.
4. The butter equivalent of 100 pounds of 3.5 percent milk - \$1.00 (assumed, but of course a different price f.o.b. the market for the butter equivalent of 100 pounds of 3.5 percent milk would be associated with different prices for the other milk products than those computed above).

Under the conditions assumed it is also obvious that milk would not be shipped to the city to be processed into the several dairy products



(except in case of error or lack of knowledge with respect to the most profitable channel of disposal, which is not possible under the assumptions set forth). Prices in the city would be quoted for milk, cream, evaporated milk and butter. All milk brought to the city would command one price, cream another, etc. Thus, there would be no differentiation in milk prices f.o.b. city.

The farm price for milk at any given point within any particular zone is, of course, equal to the farm price of milk at the outer edge of the zone plus the difference between the cost of shipping milk in the particular form to the market from the outer limit of the zone and the cost of shipping such milk from any given point within the zone. The farm price structure for milk that would obtain under the conditions set forth above is shown in Figure 5.

C. The price structure: varying quality requirements - decentralized processing.

If the assumption that all milk is of uniform quality is discarded, and it is assumed that the quality requirements for milk used in the form of fluid milk and cream are higher than those for milk used in the production of evaporated milk and butter, then the type of market under analysis is somewhat more comparable to the rather complex type of milk market now obtaining in many large urban areas.

Sanitation requirements vary somewhat between milk markets. Usually, the requirements cover such items of sanitation as periodic veterinary examination of cows, cleanliness of cows, cleanliness of dairy barns in addition to specifications with respect to the type of flooring, light, etc., specifications with respect to the type and care of the milk house, cleaning and care of utensils, and rules and regulations pertaining to milking and handling of the milk.

It should be obvious that the sanitation requirements under which milk for fluid milk and cream is produced, which in by far the larger number of cases are more stringent than the sanitation requirements under which milk for manufacturing purposes is produced, operate to increase the cost of producing milk for use as fluid milk and cream relative to the cost of producing milk for manufacturing purposes. Thus, over a period of time, the supply price <sup>3/</sup> of a given volume of milk used for fluid milk and cream will be somewhat higher than the supply price of the same volume of milk used for manufacturing purposes, other factors remaining constant. Of course, the difference between the supply prices of milk produced for use in different products in any milk supply area, other factors being the same, will depend upon the differences in the sanitation requirements applicable to milk produced for use in the different products. If it were assumed that sanitation requirements raise

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3/ The price that must be paid in order that a given volume of milk of the desired quality be forthcoming.

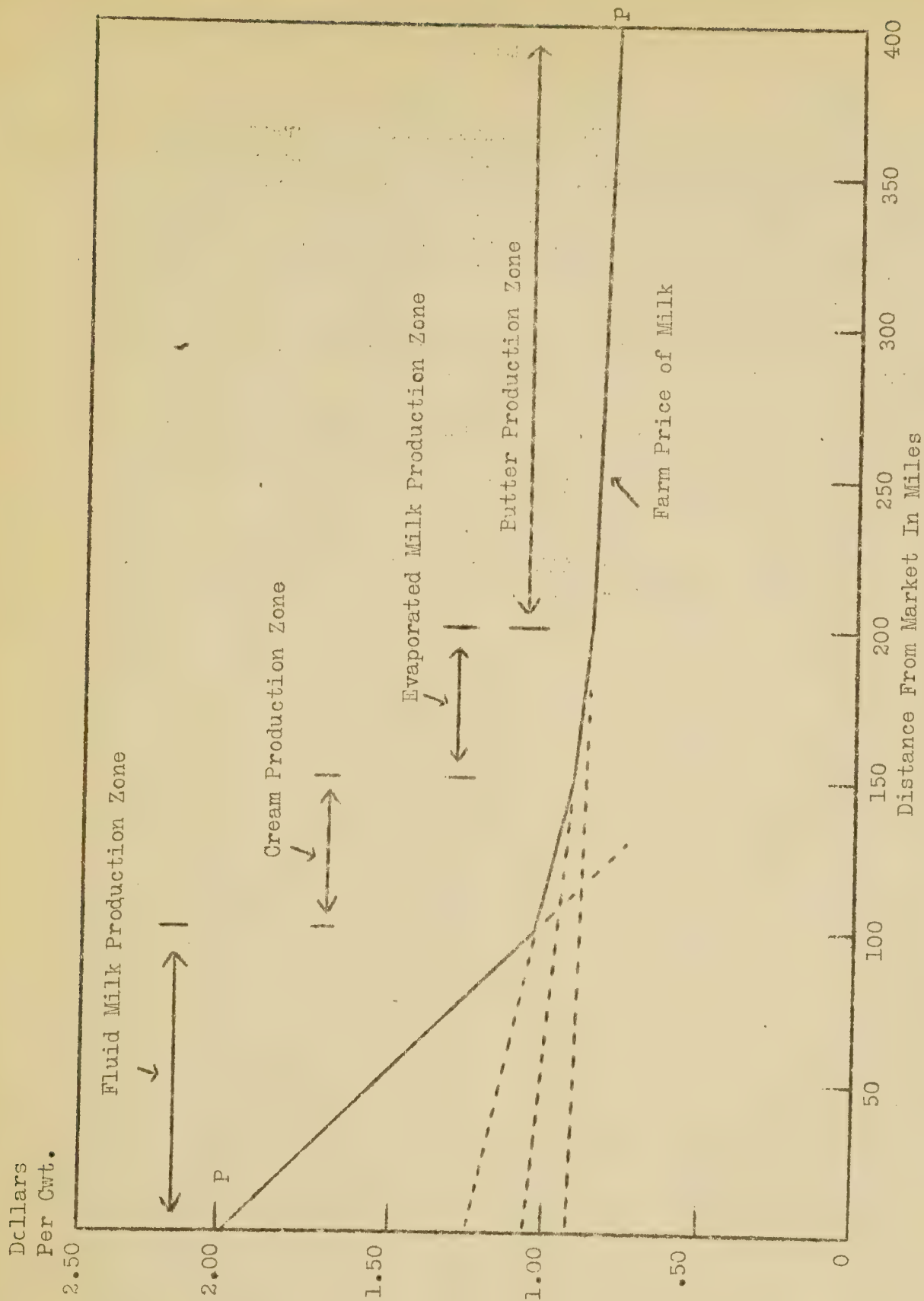


FIGURE 5. - PRODUCTION ZONES AND FARM PRICE STRUCTURE, FOR SPECIFIED DAIRY PRODUCTS AS DETERMINED BY THE TRANSPORTATION RATE STRUCTURE

F.O.B. Market Prices For Specified Product  
Equivalent of 100 pounds of 3.5 Percent Milk

the supply price of milk for use as fluid milk and cream 20 cents per hundredweight per farm above the supply price per hundredweight for milk used for manufacturing purposes, the price structure under the assumed conditions would be similar to that set forth in Figure 6 (a position of stable equilibrium is assumed, so that the f.o.b. city prices that prevail, and the farm price structure arising therefrom, are normal supply prices).

Under the conditions assumed, the prices for milk and milk products f.o.b. city would be as follows:

1. Fluid milk - \$2.25 per hundredweight.
2. The cream equivalent of 100 pounds of 3.5 percent milk - \$1.45.
3. The evaporated milk equivalent of 100 pounds of 3.5 percent milk - \$1.10.



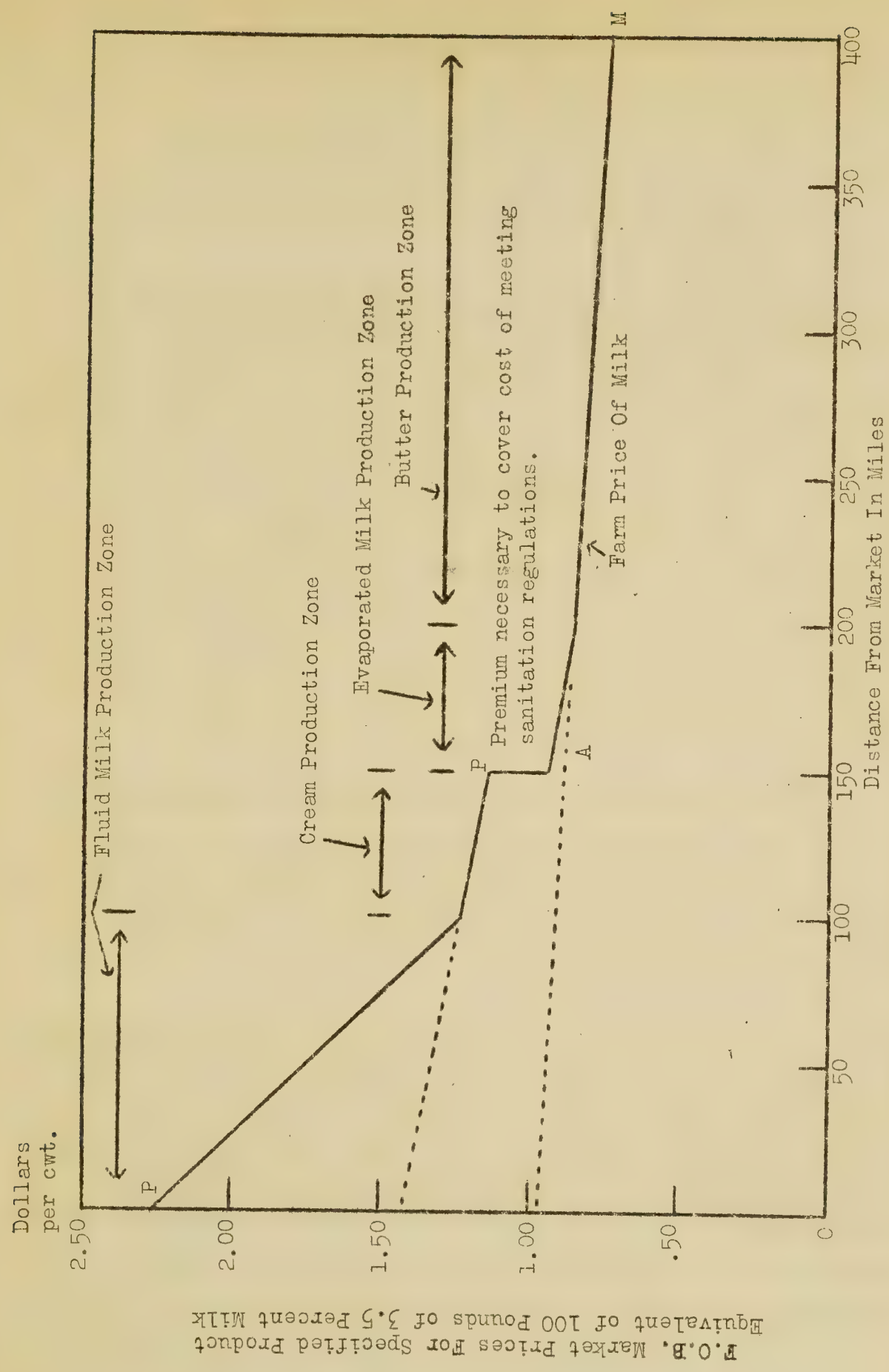


FIGURE 6. - PRODUCTION ZONES AND FARM PRICE STRUCTURE FOR SPECIFIED DAIRY PRODUCTS AS DETERMINED BY THE TRANSPORTATION RATE STRUCTURE AND SANITATION REGULATIONS FOR FLUID MILK AND CREAM.

F.O.B. Market Prices For Specified Product  
Equivalent of 100 Pounds of 3.5 Percent Milk

4. The butter equivalent of 100 pounds of 3.5 percent milk - \$1.00.

In Figure 6, the line PP represents the farm price of milk used for fluid milk and cream; the line AM the farm price for milk used in the production of evaporated milk and butter. It should be noted that as yet no factor has been introduced that will operate to establish different prices for milk f.o.b. the city. Under the assumed conditions, all milk produced within a particular zone will be used in the production of the same product. Thus, no milk will be shipped to the market as milk from the cream zone, etc. Stated differently, there will be no differentiation between the price of milk based on the form in which such milk is sold f.o.b. city. Also, no factor has been introduced that will operate so that individual producers will receive different prices for different portions of their milk. Producers within each zone will sell all of their milk at one price. Farm prices in a particular zone will vary as transportation costs from different points in the zone to the city vary, and will vary between zones because of differences in transportation costs of milk and the product equivalent of milk, and because of differences in cost of producing milk engendered by differences in the sanitation regulations applicable to milk and milk products.

D. The price structure as affected by type of transportation.<sup>4/</sup>

It should be emphasized that the foregoing treatment of the effects of the transportation rate structure and sanitation requirements on the price structure for milk has been greatly simplified for purposes of presentation. Variations in the transportation rate structure and sanitation regulations from those assumed bring additional complexities into the price structure.

One of the assumptions on which this analysis has been based so far is that transportation rates vary according to distance and weight only. However, several factors influence transportation costs, the more important of which are type of transportation (truck, tank car and railroad), complementary services, topography of country, volume, labor conditions, gasoline and truck costs, and local transportation arrangements. Some attention will be given to the effect of these various factors on the price structure and size of sheds for the different types of dairy products.

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<sup>4/</sup> This section is based largely upon a report prepared by Dr. J. M. Tinley, formerly Principal Agricultural Economist, Dairy Section.

1. Type of Transportation. From points relatively close to a market, producers frequently find it advantageous (or less costly) to transport their own milk to the city. Many producers use small trucks to transport feed, implements, etc., from the city to their farms or from one part of the farm to another and find it convenient to take their milk direct to a city plant. The farmer or a member of his family operates the truck and because of proximity to the city can reduce operating costs per cwt.-mile to a very low figure. However, as distance from the city increases, operation of a small truck per hundredweight milk increases rapidly. A large load becomes more economical so larger trucks are used. Few farmers have sufficient milk to supply a load for a large truck, so either a distributor, a private agency (hauler) or a cooperative association operates a truck and collects milk from several farmers.

After a certain distance varying between, say, ten and sixty miles, depending upon the topography, density of supply, etc., truck transportation becomes too expensive per hundredweight mile. It is expensive to operate a large truck (or truck and trailer) over country roads especially as production often becomes more scattered as distance from a city increases.

Under these conditions, milk is usually hauled by producers or by truck to a centralized country assembling point, cooled and loaded into a tank truck and hauled into the city. Also, there are definite limits to the distance from which milk can be hauled by tank truck. In some of the larger markets, milk is collected at country stations and cooled, and then shipped by train to the consuming center. In a few instances, milk is processed and bottled at a country point and shipped into the city for distribution.

In Figure 7 are shown, hypothetically, the transportation costs on milk into a large consuming center.<sup>5/</sup> For the first ten miles, milk producers will haul their own milk, the lowest cost being five cents a hundred pounds (most of which is for handling costs). The total cost rises as distance from the consuming center increases, but after about fifteen miles, costs rise very rapidly. There is a zone in which milk may either be handled by the producer or by truck. From about twenty miles, however, it becomes more economical to haul by truck. This is probably true up to about seventy miles. From seventy to ninety miles is another zone of indeterminateness in which milk may be hauled either by truck (in cans) or assembled and hauled in tank truck.

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<sup>5/</sup> The variations here discussed are not considered in later Figures. Therefore, a different set of rates has been assumed, under which the differences in rates have been magnified.



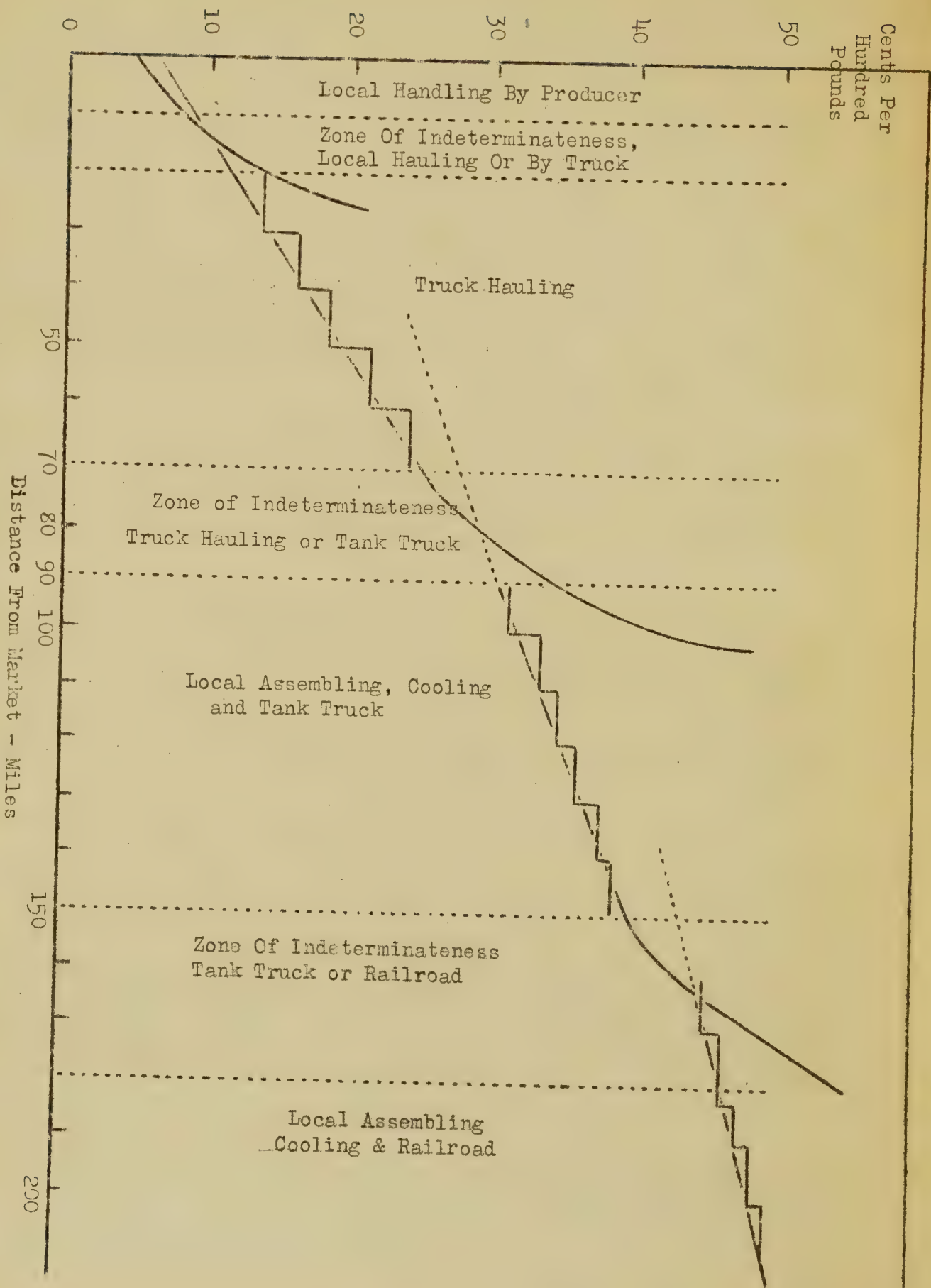


FIGURE 7. - THE INFLUENCE OF TRANSPORTATION RATE STRUCTURE UPON THE PRICE STRUCTURE FOR MILK <sup>1/</sup>

<sup>1/</sup> See text for assumptions on which diagram is based.

From ninety to one hundred and fifty miles, milk will be hauled in tank trucks, but for greater distances the time of hauling and load limitation would tend to make it more economical to assemble milk at a country plant and transport milk to city by train. There is a zone of indeterminateness from 150 to 180 miles in which milk may be hauled either by tank car or by railroad.

These distances would vary from market to market depending upon topography, state of roads, density of supply, relative costs of different methods of transportation, etc.

Transportation rates are commonly set on the basis of zones, under which rates, instead of increasing directly in proportion to distance, increase in a series of steps as is shown in Figure 7.

2. Complementary Services. Transportation rates usually include some elements of cost other than mere hauling. Milk has to be loaded and unloaded, iced or refrigerated. These are usually more or less fixed costs and do not vary with the length of haul. Thus the longer the distance hauled the lower these costs become per mile, resulting in a tendency for transportation rates per unit to decline as distance increases.

There is somewhat greater risk in hauling milk than in hauling butter -- milk has to be handled with more care and speed. For this reason a particular transportation agency may charge a higher rate for hauling an equal volume or weight of fluid milk than for butter or evaporated milk.

3. Rate Schedules. Many transportation agencies, especially railroads, do not arrange their rate schedules by miles, but by zones. It is thus possible that the rate will be the same on milk hauled 101 miles and 120 miles.

4. Topography of Country. Transportation costs per mile are usually somewhat higher in mountainous and hilly country than in flat, level country. This is due to the fact that more fuel is consumed, fuel costs are themselves high, there is more strain on vehicles and speed is greatly reduced. The condition of the roads is also important. Narrow, winding roads greatly reduce the speed of trucks and to a certain extent regulate the type of trucks that can be used.

5. Volume of Milk. Where dairies are small and scattered, the costs of collecting milk are considerably higher than where production is more concentrated. Frequent stops to pick up small quantities of milk and a long distance between stops materially increase hauling costs.

Railroads usually charge different rates, depending upon whether the commodity is hauled in carlot or less than carlot units.

6. Labor Conditions. An important part of hauling costs is the expenditure for truck drivers and mechanics. In cities where labor is cheap, rates may be somewhat lower than where wages are high.

7. Gasoline and Trucks. The prices of gasoline, oil, trucks and spare parts vary considerably in different parts of the country. This may have a material influence on hauling costs in different localities.

8. Control of Hauling. In some markets, all transportation is handled by one agency or by not more than two or three agencies. This reduces overlapping of routes to a minimum and should result in lower unit operating costs. In other markets, each producer or each distributor undertakes to make his own hauling arrangements. In such markets, a great deal of overlapping may occur. Efficient use is not made of transportation facilities, and consequently rates will tend to be higher than where there is centralized control of hauling.

The foregoing serves to indicate some of the factors that affect the transportation rate structure for milk.

E. The price structure as affected by the type of sanitation regulations.

Some of the factors that must be taken into account in determining how sanitation requirements affect the price structure for milk in different milk sheds and for a particular shed are as follows:

(1) The sanitation regulations in force in the milk shed. ~~sanitation~~ regulations are much more stringent in some markets than in others. There is, therefore, no possibility of developing a generally applicable cost figure which could be applied to the price structure for milk within a particular market and used in the practical determination of milk prices within a particular milk shed.

(2) The cost of meeting sanitation regulations, even though the regulations are the same in some markets as in others, may be widely different. Labor and material prices may vary materially between different markets, so that, even though the regulations may be exactly the same between particular markets, the cost of meeting the sanitary regulations may vary materially.

(3) In addition, health and sanitation regulations may be of such nature as to permit only those producers located relatively near the market to qualify as fluid milk producers. For example, the imposition



of a regulation requiring that fluid milk shall be delivered to the consumer within a given number of hours from the time it is produced would automatically set a maximum distance over which milk could be transported and might reduce materially the area from which fluid milk could be shipped to the market. In this case the price for fluid milk would increase until consumption was reduced, or until production within the area was increased, or both, to the point where the market would just use the milk produced within the new zone. This, of course, would increase the price spread between fluid milk and the product equivalent of milk used in other dairy products f.o.b. the market, and would increase the farm prices of fluid milk relative to the farm price of milk used in the production of other dairy products.

Also, sanitation regulations may not increase the costs of meeting the sanitation regulations by the same amount per unit of product on all farms. Some farms are better equipped than others and hence have smaller additional expenditures to meet requirements. Large dairies can ordinarily utilize equipment more economically and, therefore, their cost per unit for milk houses, cooling equipment and other outlays commonly required by health and sanitation regulations is lower. Such dairies have their competitive position improved by the raising of inspection requirements and may increase their production. Others may tend to shift to cream, or butter production, rather than make the additional outlays necessary. Depending upon these effects on supply, zones from which the various products are shipped to the market may be either enlarged or reduced by the imposition of or changes in the sanitation regulations.

While this discussion of the price structure has been developed entirely in terms of transportation costs and costs of meeting health and sanitation requirements, it should be apparent that variations in costs resulting from other causes will work out in practically the same manner. The important distinction is between the effects on the price structure of those costs which vary with distance from market, as does transportation, and costs which are likely to be rather uniform regardless of distance from the city. The influence of each of these types upon the price structure for milk is illustrated in a general manner by this analysis of transportation costs and costs of meeting health and sanitation regulations.

Variations between farms, such as those due to available equipment, type and condition of herds, type of land, labor supply and even personal preferences, will partially determine which farmers will produce milk for the various uses. Also the relative significance of these latter factors becomes greater as class differentials become smaller near the boundaries of zones. Therefore, their principal effect

is to cause the boundaries between the areas in which the several classes are produced to be less clearly defined than would be indicated by the simplified example set forth in the analysis.

(4) Also, there are higher sanitation regulations for fluid milk than for cream in some markets. This operates to establish higher supply-prices for milk produced for use as fluid milk than for milk produced for use as fluid cream.

The foregoing serves to indicate in a general way the manner in which sanitation regulations affect the price structure for milk within a milk shed, and how differences in the sanitation regulations may affect the price structure in different milk sheds.

F. The price structure; decentralized processing - uniform quality requirements - variations in production.

The manner in which the transportation rate structure and sanitation regulations affect the price structure for milk within a milk shed has been set forth in some detail in the preceding pages. In order to approach more nearly the price structure for milk as it actually exists in many milk markets consideration will be given to the price structure under the conditions that prevail when the assumption that there is no variation in production is dropped.

There are marked variations in the production of milk, which are perhaps most easily classified on the basis of time periods, such as day to day, week to week, year to year, and long time variations. There is some day to day variation in production, although this type of variation is undoubtedly negligible. The seasonal variation that takes place in milk production within most milk sheds <sup>6/</sup> is marked, production in the fall and winter months usually being much less than production in the spring and summer months. This type of variation is due largely to such factors as (1) the greater supply of succulent feed available during the pasture season, (2) time of freshening of cows, (3) inclement weather during the winter months, etc. In some areas, the seasonal variation in production is much more extreme than in others <sup>7/</sup> and even within the same area, production often shows a more marked seasonal variation in some regions than others within the area.

Year to year changes in production are due to such factors as (1) differences in feed production conditions that are associated generally with differences in weather and growing conditions, (2) shifts into and out of the dairy business due to changes in the relative

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<sup>6/</sup> Ross, H. A., Cornell University, Agri. Exp. Station Bulletin No. 527; also based on production data secured with respect to the markets operating under Federal milk licenses.

<sup>7/</sup> Based on production data secured with respect to the markets operating under Federal milk licenses.



profitableness of milk production as compared to other types of agricultural production, (3) other factors that may operate intermittently, such as the imposition of a sanitary regulation to the effect that all milk sold in the market as fluid milk and cream must come from cows free from tuberculosis, which may operate to cause a marked decrease in the number of milk cows within the area, reduce production within the area quite markedly for a short period, and necessitate a temporary increase in the size of the milk shed.

Cyclical and long-time changes in production are probably associated with long time trends in demand, such as changes in the consuming habits of the people, the ebb and flow of population in urban centers and other factors such as changing opportunity cost relationships and type of farm organization and operation which set the limits of expansion of production within a given area, etc.

Seasonal variation is one of the most important types of variation in production. For purposes of presentation, therefore, the manner in which seasonal variation in production affects the price structure for milk within a milk shed is considered, with all other types of variation in production noted above held constant. <sup>8/</sup>

For most milk markets the volume of milk sold to consumers as fluid milk and cream varies somewhat from season to season, but the production of milk varies much more seasonally. Thus, during the period of low production, the production of milk within a milk shed may be just sufficient to meet market requirements (an amount about ten percent in excess of average daily sales), while during the season of flush production the volume of milk produced within the milk shed is usually far in excess of market requirements.

For purposes of presentation, it is assumed that (1) during the period of low production the volume of production within the 100-mile zone (see Figure 5) is equal to market requirements for fluid milk, (2) the sanitation regulations are the same for all milk regardless of the form in which it is sold, (3) production varies seasonally, (4) there is no difference between the seasonal production curves of individual producers, and (5) there are no variations in consumption other than daily. Under these conditions, there are several lines of procedure which distributors might follow with respect to purchasing milk from producers, such as (1) expanding and contracting the area from which milk is secured inversely to the expansion and contraction of milk production, (2) taking all the supply of milk produced within a given area (wherein the supply during the period of low production is just sufficient to meet the market requirements for fluid milk)

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<sup>8/</sup> For ease in presentation, the examples used to explain certain points are stated in terms of fluid milk only throughout the remainder of this paper. The same treatment is applicable in a general way to other dairy products.



and paying producers prices low enough to enable distributors to secure a high enough margin on fluid milk to cover the losses incurred in handling manufacturing milk during the period when supplies are larger than fluid requirements, or (3) purchasing milk from producers under a price arrangement which encourages producers to produce an even volume of milk throughout the year.

If distributors elected to secure their market requirements for fluid milk by contracting and expanding the area from which they draw their supplies inversely to the seasonal variation in production, refusing to take the production of distant shippers during the season of low production, the zones from which fluid milk would be drawn at different periods of the year would show marked difference from that shown in Figure 5. If, during the period of low production the volume of milk produced in the area within 100 miles of the market were sufficient to meet fluid requirements, the volume of milk produced within this zone would be far in excess of fluid requirements during the period of heavy production. For example, if the volume of milk produced during the peak production period were 40 percent above that produced in the low production period, the milk shed would be markedly contracted, about 40 percent in area if the density of production were constant throughout the area, but more than this if, as is often the case, the density of milk production declines as distance from market increases.

Assuming that the price of milk during the low production period were \$2.05 f.o.b. city, and the farm price structure the same as that indicated in Figure 5, the f.o.b. market price during the period of high production would be less than the f.o.b. market price during the season of low production by an amount equal to the saving in transportation costs involved in securing the supply of milk closer to the market during the flush period, and would vary between these limits during the year, depending upon the extent of the area wherein the volume produced was needed to meet fluid requirements. The farm prices would vary in the same manner, being equal to f.o.b. market prices less the cost of transporting milk to the city.

There are several factors, however, that operate to cause distributors to secure their milk from the same area throughout the year, rather than expanding and contracting the geographical scope of their operations to secure only that milk needed to meet fluid milk requirements. It is a matter of grave concern to the distributor that he be assured of a volume of milk sufficient to meet his market needs. Therefore, the risk involved in dropping a source of supply during the season of flush production, when it is practically certain

that that source will be needed during the season of low production, is a factor operating to check such action, since the distributor can never be certain that some competitor will not immediately furnish the shippers he dropped with an outlet for their milk, thereby forcing him to seek even more distant sources of supply during the season of low production.

Another factor of importance in this connection is that related to the costs of procuring milk from a rather constant area, as compared to the cost of procuring milk from an area that varies markedly throughout the year both in geographical extent, and the number of individual sources of the raw material. It undoubtedly costs less to procure milk from an area that stays rather constant with respect to geographical extent and number of producers, than from an area that varies markedly throughout the year in geographical extent and number of producers. Some of the savings are: (1) there are fewer field men needed to contact producers and secure their patronage, (2) bookkeeping and office expense is lower due to the fewer number of producers for whom accounts must be kept, statements must be prepared, and to whom payments must be made, (3) fewer laboratory tests have to be made, resulting in savings in laboratory technician labor costs, laboratory supplies, etc., (4) fewer individual containers have to be handled, involving savings in receiving labor, can washing, and sampling, and (5) there is less cost involved in furnishing various services to producers. It appears, then, that distributors can afford to pay producers a premium for evenness of production, so that they may, through the payment of such premium, secure the volume of milk needed by them to meet their fluid milk requirements from an area smaller in extent geographically, and in numbers of individual sources of supply, rather than securing their supply from an area that contracts and expands markedly as production decreases and increases seasonally. The amount of the premium distributors can afford to pay in this connection is the difference in the costs of procuring their milk supply from an area that remains practically constant in geographical extent and in number of individual sources of supply, and the cost of procuring milk from an area that varies markedly in geographical extent and the number of producers from whom milk is purchased.

There is another factor that exerts a tendency to cause the distributor to pay producers a premium for evenness in production. It has been pointed out previously that a volume of milk perhaps 10 percent in excess of average daily sales must be brought to market to meet daily variations in the volume of milk sold to consumers as fluid milk. In order to handle this volume of excess milk, which might be termed the daily operating reserve, the distributor has to integrate a by-product

enterprise with the main enterprise, or find some other channel of disposal. However, as far as this operating reserve is concerned, it is of such constant volume<sup>2/</sup> that efficient methods of disposal as manufactured products can be developed. It is the marked variation in the seasonal excess and the difficulty of handling it efficiently that is an important factor in leading distributors to endeavor to secure a more even volume of supplies. This arises because more efficient methods of handling the excess can be developed when the supply is constant than when it varies markedly. Thus, during the season of flush production the distributor has to convert to other uses, or someone else does it in his stead, a volume of milk that may be several times as great as the volume so converted during the season of low production. This may be demonstrated by reference to some assumed figures, as follows:

1. The volume of milk sold daily as fluid milk throughout the year is 10,000 pounds.
2. The volume of milk brought to market is 11,000 pounds (10 percent of average daily sales needed to meet daily variations in fluid milk sales) in the season of low production and 14,000 pounds during the season of flush production.

The volume of milk that is diverted to uses other than fluid milk is therefore 1,000 pounds per day during the season of low production and is 4,000 pounds per day during the flush period, or 3,000 pounds greater than during the low period. This is entirely a seasonal excess (3,000 pounds of the 4,000) and represents an increase in the output of products other than fluid milk of 300 percent. Of course, under actual conditions, the increase in the volume of milk diverted to uses other than fluid during the flush season will be dependent upon the actual seasonal variation in production, which will, in some cases, be greater, and in other cases less, than indicated in the above example.

The seasonal excess in production therefore raises serious questions as to how it may be handled efficiently. It undoubtedly costs far more to handle a volume of excess milk that fluctuates markedly from season to season, as does a seasonal excess, than it costs to handle a volume of excess milk that remains rather constant from season to season. This is due to the fact that equipment, and in many cases labor, must be available to handle a peak load far in excess of the load during the period of low production when only a small volume of milk, equal to about 10 percent of average daily sales,

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<sup>2/</sup> Assumed, but practically all available data indicate that it is actually quite constant.



is converted to uses other than fluid milk. The distributor, therefore, can afford to pay a premium for evenness of production in addition to that already noted, the size of the premium being approximately equal to the difference in costs involved in handling a constant volume of excess (the operating reserve) as compared to handling a widely fluctuating volume of excess milk (the seasonal excess).

The foregoing indicates that distributors are able to pay a premium for evenness in production. It appears that it would be a matter of indifference to distributors whether they paid a given sum of money, including premiums for evenness of supply, to secure a particular volume of milk, or paid a sum of money about equal to the former for a similar volume of milk, the latter sum, however, being paid partly to producers delivering an uneven volume of milk, and partly for extra costs involved in procuring milk from an irregular area. In the former case, the farmer gets a higher percentage of the total volume of money expended for milk purchases and operating costs by the distributor than in the latter case, but total costs to the distributor remain about the same. It is probable that it is a matter of indifference to distributors whether they pay out a given sum of money in the one manner or the other. If distributors elect to secure their milk supply without paying producers a premium for evenness in production, it is evident that the seasonal variation in producers' prices would be quite marked.

It is, obviously, more economical to secure milk that is to be sold as fluid milk from sources near the market and to process the seasonal excess into milk products other than fluid milk at points outside the area wherein production is just necessary to meet fluid requirements, since the cost of transporting the fluid milk equivalent of manufactured dairy products from any given point is much greater than transporting such products to market in finished form. Of course, the extent of the saving will depend upon the size of the area and the like. Thus, during the period of flush production, fluid milk would be drawn from a point much nearer to market (depending upon the seasonality in production and relative density of production throughout the area) than during the season of low production. F.o.b. market prices for fluid milk during the year would vary directly with differences in costs of transporting milk from different points within the area. Thus, if milk is transported only 50 miles during the flush period and 100 miles during the low period, f.o.b. market prices, assuming transportation costs of 1 cent per hundredweight per mile, would vary within a 50-cent range during the year, being 50 cents higher during the period of low production than in the period of high production. Farm prices would vary in the same manner, being equal to f.o.b. market prices less transportation costs.

If, however, milk is brought to the market in fluid form and is then diverted to more concentrated forms such as cream, evaporated milk and butter, the product equivalent of such milk will sell at prices f.o.b. the market equal to the price at which the product can be shipped to the market from distant areas. Thus, if the butter equivalent of milk can be brought to the market from distant sources for \$1.00 f.o.b. the market (farm price plus transportation costs on the butter equivalent of 100 pounds of milk), the butter equivalent of milk brought to the city in fluid form will sell for only \$1.00 f.o.b. the market. The farm price of such milk would be materially less than \$1.00 per hundredweight. For example, if milk is shipped 50 miles and transportation costs are 1 cent per hundredweight per mile, the cost of transporting a hundredweight of such milk is 50 cents. If the product equivalent of such milk sells for \$1.00 f.o.b. the market, then the farm price of such milk would be 50 cents. Of course, if such milk is shipped any great distance as fluid milk, the product equivalent f.o.b. the market may not sell for enough to more than cover transportation costs from the farm to the market. Therefore, if milk is shipped to the market in fluid form for any appreciable distance and then converted to more concentrated products, farm prices for fluid milk are decreased appreciably. Under these conditions the seasonal variation of prices paid producers would be much more pronounced than that obtaining under the conditions treated previously.

G. The price structure, decentralized processing, special quality requirements for fluid milk - variations in production.

The seasonal variation in prices to producers would be even more marked than under the conditions treated previously if there were higher quality requirements for milk produced for use as fluid milk than for milk produced for use in other products.

This can be demonstrated quite readily by reference to the following example wherein it is assumed that (1) distributors bring to the market only that milk needed to meet their fluid requirements, which are assumed to be constant; (2) the area from which the fluid milk is drawn is contracted and expanded inversely to the seasonal variation in production; (3) distributors contract with producers to take their milk only for the periods wherein it is needed (obviously, under this sort of an arrangement the milk of some producers would be used as fluid milk all of the time while that of others would be so used at only certain specified seasons in the year); (4) the cost

of meeting sanitation requirements, if all milk were sold as fluid milk during the year, would be 20 cents per hundredweight per producer; (5) the alternative farm value of milk sold for any other purpose is \$1.00 per hundredweight; (6) transportation costs vary uniformly with distance, at one cent per hundredweight per mile; (7) during the season when the milk of producers in outlying areas is not needed for fluid milk uses, there are plants available for manufacturing it into other dairy products.

Under these circumstances the total yearly cost of meeting fluid milk requirements for outlying producers, or, rather, for those producers who sell their milk as fluid milk for a short period during the year, would have to be covered in a much higher farm price<sup>10</sup> for the months during which they sell their milk as fluid milk. Under these assumptions, a producer selling his milk as fluid milk during the entire year would incur only 20 cents per hundredweight additional expense for meeting sanitation regulations. On the other hand, the producers who sold milk as fluid milk one month of the year would incur equal expenses over the entire year, or approximately twelve times as great per unit for the month during which such milk is sold as fluid milk. Thus, during the season of low production the farm price must be sufficient to cover, during one month, the entire cost of meeting sanitation regulations for the entire year, which, in the assumed case, would amount to approximately \$2.40 per hundredweight above the alternative use value for milk at the farm. The operation of this factor is depicted graphically in Figure 8.

Under these assumptions the f.o.b. city price (farm price plus transportation costs) ranges from \$2.20 per hundredweight during the month of high production to \$4.95 per hundredweight during the month of low production. If, as assumed, distributors purchase a uniform quantity of milk per month, the weighted average price would be approximately \$2.90 per hundredweight. If, however, production within the area within 100 miles of the market (see Figure 8) were uniform from month to month at a level equal to production during the month of high production obtaining in the example set forth above, the f.o.b. market price throughout the year would be \$2.20 per hundredweight as compared to the weighted average price of \$2.90 per hundredweight prevailing under the conditions as set forth in the previous example. If, therefore, the distributor

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<sup>10</sup>/ Of course, part of the expenses of producing milk in conformance with the sanitation regulations is fixed, and part of them is variable. This introduces an additional complexity, and probably operates to change the seasonal price curve from that set forth in this analysis. However, it does not appear necessary to develop this point further for the purposes of this paper.



Farm Price Structure - Special Sanitation  
Requirements for Fluid Milk - Fluid  
Milk Area Varied Inversely to the Seasonal  
Variation in Production

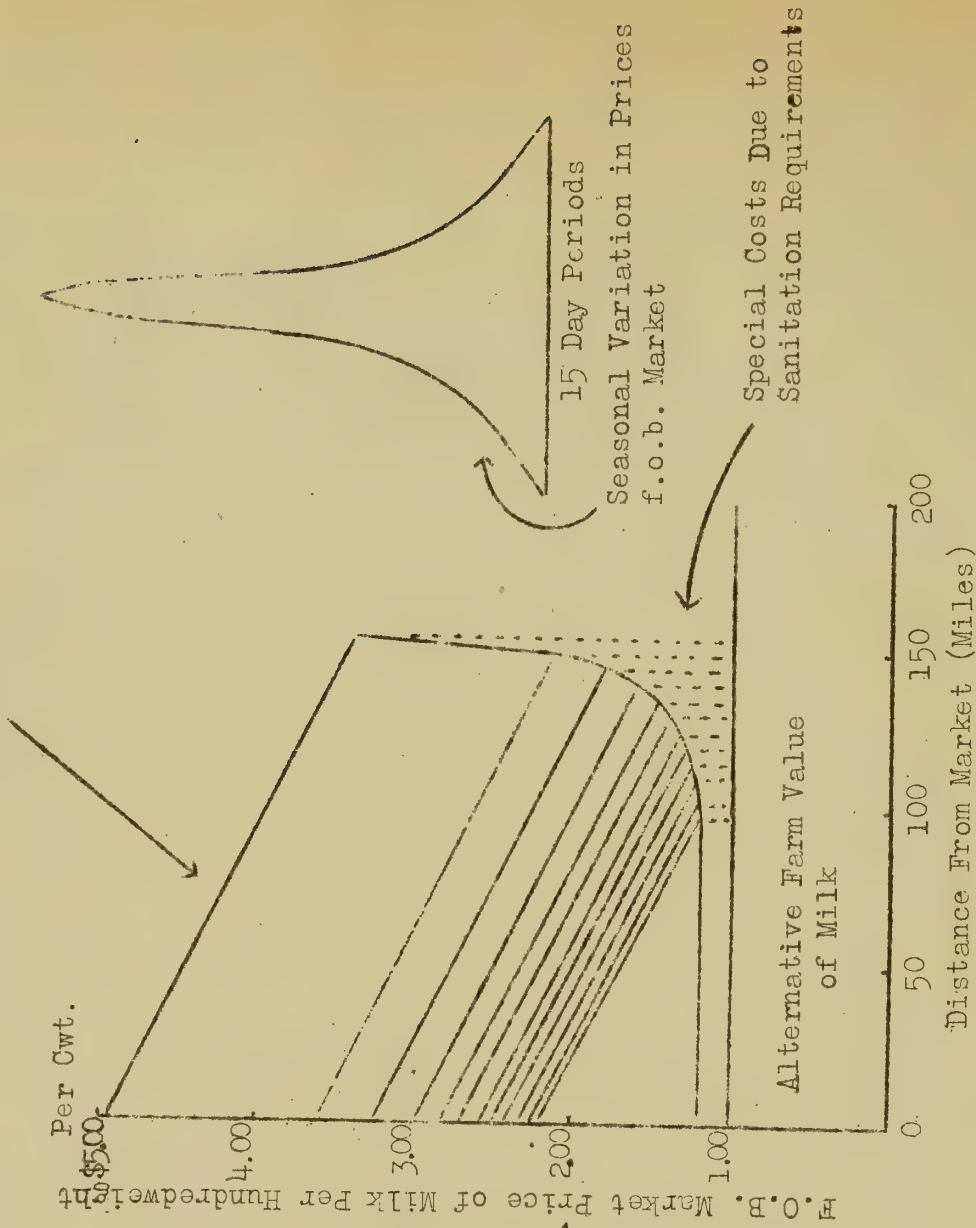
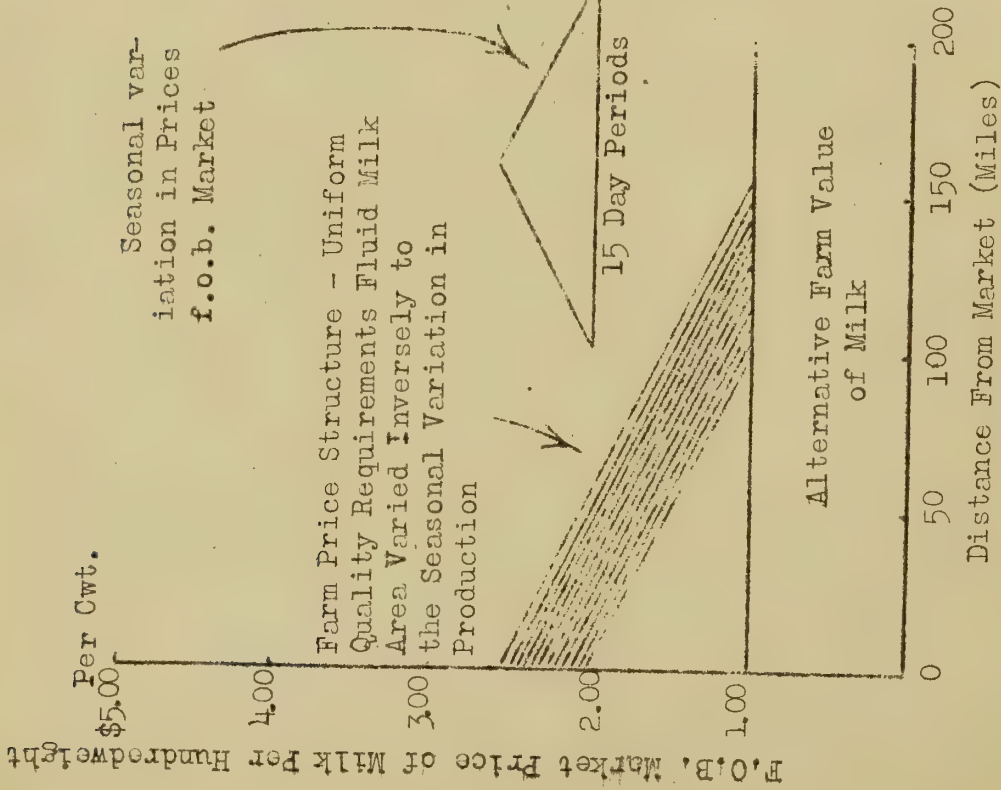


FIGURE 8. - THE PRICE STRUCTURE FOR FLUID MILK WITH DECENTRALIZED PROCESSING,  
SPECIAL QUALITY REQUIREMENTS FOR FLUID MILK ASSUMED.

could procure his milk supply from producers who produce a constant volume of milk throughout the year, it is to his best interest to do so, since he could secure his milk supply for less total cost than would be the case otherwise. 11/

It should be noted that the marked seasonal variation in prices, which in any particular market would be different from that set forth above, depending upon the degree to which conditions in the market and the supply area vary from those assumed in the example, would in time be partially corrected by producers within the area changing their seasonal output curves in order to sell a larger volume of milk during the period when prices are seasonally high. However, it would be greatly to the advantage of some producers to shift their seasonal output curves, and little if any to others, depending upon the type of farm organization and operation followed by each.

It has already been indicated that distributors can afford to pay producers in such a manner that evenness in production is encouraged, due to the economies in procurement costs in securing milk from an area that is rather constant geographically and in number of individual sources of supply rather than an area that varies markedly in geographical extent and in the number of individual sources of supply. Also, it has been indicated that the economies involved in handling a minimum and rather constant volume of excess milk furnish an incentive for distributors to pay producers in such a manner that evenness in production is encouraged, in addition to the incentive noted above.

Heretofore it has been assumed, for purposes of analysis, that there is no difference between the seasonal production curves of individual producers. This assumption is now discarded and the analysis focused upon conditions more nearly in accordance with those that prevail in actual markets. It is well recognized that there are marked differences between the seasonal production curves of different groups of producers as well as individual producers. 12/ Thus, in any particular milk market there are many producers who produce milk practically in accordance with fluid milk needs, while others do not.

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11/ For purposes of presentation and emphasis, this example has been exaggerated.

12/ Lininger, F. F., Pennsylvania State College, Agricultural Experiment Station Bulletin No. 231, also based on unpublished data in the files of the Dairy Section.

A brief consideration of the types of distributors and processors operating within any particular milk shed will now be given in order to bring into the analysis the conditions which, taken in conjunction with those set forth in the two preceding paragraphs and in Part III of this paper, suffice to explain why milk suitable for consumption as fluid milk is brought to market, one part of which sells for one price, another part for another, etc., in short, the development of a system of class prices.

In almost any milk market (except as is the case in those small villages and towns where practically all of the milk is distributed by producers) where the economy of the market has developed to the point that distributors have become specialized, different degrees of specialization obtain between distributors. Some distributors sell only fluid milk and/or cream; others sell only fluid milk and/or cream and a relatively small volume of manufactured by-products (butter, cheese, ice cream, etc.) and still others sell some fluid milk and cream and sell a relatively large volume of manufactured dairy products. Within the same area, other processors produce and sell manufactured dairy products entirely. In other words, all degrees of enterprise combinations are to be found, ranging from the highly specialized fluid milk distributor to the relatively as highly specialized manufacturer of manufactured dairy products. The reason for such specialization is, obviously, that the economies in organization and operation gained through specialization are quite marked. This point needs no further proof than that evident to anyone who observes the present organization and operation of industry, both agricultural and non-agricultural.

Under the above conditions, it may appear that it is to the interest of all fluid milk distributors and all processors of manufactured dairy products within a particular area to pay producers in such a manner that evenness in production is encouraged rather than for specialized fluid milk distributors to do this alone. This is true to a certain extent. However, milk is bulky and perishable and the storage of milk is not economically feasible. On the other hand, manufactured dairy products can be and are stored for relatively long intervals. Thus, manufactured dairy products are produced in largest volume during the spring and summer months and are stored until they are moved into consumption. This tends to even out the seasonal variation in the prices of manufactured dairy products. Under these conditions the premium that could be paid producers of milk for use in manufactured dairy products to encourage evenness in supply would be equal to the cost of storage from the flush production period until the product moves into consumption and the savings realized in manufacturing costs when the volume of product



produced throughout the year is constant rather than varying. In addition, the supply areas of individual manufacturing plants are, in most cases, much smaller than the supply areas of individual fluid milk plants so that transportation costs do not affect farm prices seasonally to as great an extent as is the case with fluid milk. Also, there are, in many cases, few sanitation requirements with respect to the production, care and handling of milk produced for use in the production of manufactured dairy products; and, in those cases where there are sanitation requirements with respect to such milk, they are rarely, if ever, of such nature that farm production costs are increased markedly. Thus, sanitation requirements for milk produced for use in the production of manufactured products do not operate to increase the seasonal variation in the price of such milk to any appreciable degree, certainly, in any case, to a much lesser extent than in the case of milk produced for use as fluid milk. These considerations suffice to explain in a large measure why pricing systems pointed to encouraging evenness in production have not developed with respect to milk produced for use in the production of manufactured dairy products.

In view of the foregoing, it appears that there is a wide range in the incentive of different types of distributors to pay producers in a manner that encourages evenness in production. For specialized fluid milk distributors this incentive is quite strong and diminishes in strength in relation to the diminution in the degree of specialization of distributors until, in the case of manufacturers of manufactured dairy products, there is little incentive to purchase milk from producers for evenness so that evenness in production is encouraged. Under these conditions fluid milk distributors will compete with each other to secure the patronage of those producers who produce a rather constant volume of milk throughout the year so that these producers become associated with specialized fluid milk distributors. Further, producers who produce a more variable volume of milk will become associated with less specialized distributors. Stated in other terms, when producers are classified on the basis of their relative seasonality of production, they will tend to become directly associated with distributors in accordance with the relation between the relative constancy of production of different classes of producers and the relative strength of the incentive of different classes of distributors to secure an even volume of supply of the raw material. Thus, within a milk shed different producers will receive different prices for milk, such differences, after adjustments for location differences, being due to relative differences in the seasonal variation of production of different producers. Under these circumstances and providing economic forces have time to work out their full effects, producers who produce a relatively constant volume of milk throughout the year will receive

higher prices than those producers who produce a relatively more variable volume of milk throughout the year. Furthermore, the producers who produce a relatively constant volume of milk throughout the year will tend to be associated with highly specialized fluid milk distributors (highly specialized in the sense that the operating unit is engaged almost entirely in the distribution of fluid milk), while those who produce a relatively more variable quantity will be associated with distributors who are less highly specialized (in the sense noted above).

Heretofore, no seasonal variation in consumption of fluid milk has been assumed. The next step in the analysis is to examine how (1) various factors operate to establish retail prices for fluid milk at a practically uniform level throughout the year and, with small seasonal variation in demand, lead to the development of the seasonal excess, and (2) the manner in which the bargaining arrangements between producers and distributors affect the price structure for milk within a milk shed.

### PART III

#### The Utilization of Milk in a Market as Influenced by the Nature of the Demand for Milk.

Heretofore the analysis has been developed on the assumption that there were no variations in the amount of milk sold as fluid milk in the market from day to day and season to season, hence, granting seasonal variation in production, it followed that, during the period of the year when production exceeded consumption, a portion of the milk produced for use as fluid milk in a particular area had to be diverted to uses other than fluid milk. This assumption is now dropped, and the analysis is focussed upon the determination of (1) whether there are variations in the volume of milk sold in the market from day to day and season to season, (2) the factors that account for such variations, if any, and (3) whether such variations are or normally may be expected to be of sufficient amplitude to keep the total volume of milk sold as fluid milk in the market equal to the volume of milk produced for use as fluid milk in the area supplying the market. A solution of the problems noted above is to be found largely in a consideration of the nature of the demand for fluid milk and the manner in which milk is distributed to consumers.

When considered in light of the usual supply and demand analysis of the factors affecting the price of any particular commodity, it might be expected that retail milk prices to consumers would be adjusted or changed from day to day and week to week as changes took place in the supply and demand situation. Stated differently, if, on a particular day of the week or during any particular week, milk supplies increased or decreased, it might be expected that retail milk prices (assuming no change in demand) would vary inversely to the changes in supplies, especially in view of the fact that milk is a highly perishable product and cannot be stored advantageously.

As far as actual supply and demand conditions are concerned, there are relatively large day to day variations in demand <sup>13/</sup> and relatively small day to day variations in supply. Under these circumstances, it might appear that there would be marked variation in the retail price of milk from day to day. However, it is probable that this pricing procedure would necessitate a type of market organization or mechanism whereby buyers and sellers would meet, or through which buyers' day to day demand schedules and sellers' day to day schedules of reservation prices would

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<sup>13/</sup> This point is developed in more detail later.



be made known and would operate to adjust prices in accordance with the day to day supply and demand situation. This type of market organization or mechanism would be somewhat analogous to the present produce exchanges. However, such procedure would be markedly different from the present procedure through which day to day retail prices not only of milk but of many other products are established.

Milk is generally distributed to consumers early in the morning, and numerous milk routes are necessary in order that customers be reached. A driver on a milk wagon cannot ascertain what the demand for milk will be on his route until he has completed deliveries. Thus, as a practical matter, it is impossible for him to adjust his prices in accordance with the demand situation as he finds it. The same considerations apply to the distributive enterprise as a whole. If the demand schedules of consumers on each milk route, and the aggregate demand schedules of consumers purchasing from each distributor and for the market as a whole, were known and accurately predictable from day to day, then the dealer could (in theory) quote prices each day on the basis of day to day changes in the day to day supply and demand situation. As a practical matter this procedure would be extremely unworkable. The highly technical nature of the analysis that would be necessary if such procedure were to be followed; the cost of such precise analysis (which would probably have to be detailed enough to allow the determination and forecasting of the demand schedules on many, if not all, milk routes), and the partially indeterminate nature of the results secured would preclude following the procedure outlined. The only practical procedure is for the distributor to quote prices for a longer period of time, rather than to quote prices daily. This is the procedure distributors actually follow and, under these circumstances, day to day variations in the demand for fluid milk (day to day variation in supplies <sup>14/</sup> are negligible) are manifest in variations in day to day purchases by consumers at a constant price, rather than being manifest in day to day variations in price.

It may appear, when weekly and monthly periods are considered, that retail prices would change in response to weekly and monthly changes in the supply and demand situation. However, retail prices remain constant for relatively long periods. (See Table 1.) The reasons for retail prices remaining constant for relatively long periods of time, rather than being reduced so that the seasonal increase in the volume of milk produced for use as fluid milk which takes place during the summer months in most milk market supply areas is moved into consumption as fluid milk, will now be examined. The explanation of practically constant retail prices of fluid milk is to be found mainly in the nature of consumer's response to changes in prices and, arising mainly therefrom, the sales and price policy followed by distributors.

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<sup>14/</sup> This is not to say that supplies do not change from day to day, since there is a trend in daily supplies that is seasonal in character. However, this trend is small when considered on a

Table 2. Number of periods during which retail price of milk remained unchanged for a year or more in principal milk markets.

Market	Period during which price remained unchanged				Period covered	Percentage which the period during which price remained constant for a year or more is of total months in entire period
	13-24 months	25-36 months	37-48 months	Over 48 months	years	
New York	1	2		1	1909-31	46.4
Boston		1			1907-31	11.3
Philadelphia	1	2		1	1907-31	67.7
Chicago	1		1	2	1907-31	71.7
Baltimore	5	1		1	1909-33	61.3
Washington	4	1			1909-31	31.2
Minneapolis	4	1			1909-30	35.2
St. Paul	2	1			1914-31	28.2
St. Louis	1	1		1	1909-31	52.2
Atlanta	5		1		1907-31	40.3
Omaha	3				1909-31	22.1
Denver	2	1		1	1909-31	41.7
Los Angeles	5		1	1	1909-31	64.9

Based on data secured from reports of the Bureau of Labor Statistics, United States Department of Labor.

Statistical investigations have in general indicated that the demand for fluid milk by consumers is very inelastic; that is, that the change in the quantities of milk taken, following increases or decreases in price, is relatively very small. Two published studies <sup>15/</sup> for the Chicago and New York markets indicate that, during the period covered by the studies, when consumers recognized the necessity for changes in the retail price of milk, a one cent change in the retail price of milk per quart had a very slight immediate effect on sales and this effect was considerably diminished after five or six weeks.

Evidence relative to the influence of price changes upon milk sales has been obtained from an examination of the milk sales by distributors purchasing from cooperative associations in Baltimore, Maryland, Boston, Massachusetts, and the Twin Cities, Minnesota. In these cities the cooperative associations have a considerable share of the business of the market and changes in their sales are no doubt representative of the market as a whole. These data were analyzed by comparing the sales in the calendar month preceding the price change with the sales in the calendar month following the price change, <sup>16/</sup> after adjusting for the influence of the average seasonal variation in sales. Indexes of seasonal variation were calculated by the median-link~~-~~ relative method, omitting the months in which price changes occurred. The compared months have been adjusted by dividing each by its corresponding seasonal index. The results of the analysis are given in Tables 2 to 4.

Examination of the data shows that usually a change in price results in an opposite but much smaller change in sales. In Boston, there were fifteen price changes (eight decreases and seven increases) during the period March 1922 to September 1931; in Baltimore there were only two changes, one decrease and one increase; and in the Twin Cities market there were seven decreases and three increases. Changes in sales in Boston were directly associated with changes in prices in four cases instead of being inversely associated as would be the case if other conditions remained the same. These four exceptions followed price changes occurring in July 1927, April 1928, July 1929 and August 1931; and there were four exceptions in the Twin Cities market in March 1926, November 1927, January 1931 and March 1932.

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<sup>15/</sup> Ross, H. A. The Marketing of Milk in the Chicago Dairy District. Ill. Agr. Exp. Sta. Bull. 269, pp. 503-510, 1925.  
Ross, H. A. Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York. U. S. Dept. of Agr. Tech. Bull. 73, pp. 44-47, 1928.

<sup>16/</sup> In some cases prices changed each month for two or more consecutive months. In these cases, the sales in the calendar month preceding the price change were compared to the calendar month following the last month in the series of consecutive monthly price changes.



Table 3. Changes in sales of fluid milk following changes in retail prices, Baltimore, Maryland, September 1926 to May 1931, inclusive.

Month	Sales (30-day month basis) <u>1/</u>	Index of seasonal varia- tion <u>2/</u>	Seasonally adjusted sales <u>3/</u>	Retail prices per quart <u>4/</u>
	: 1,000 gallons :	: Percent :	: 1,000 gals :	: Cents :
September 1926	: 1,544 :	: 100.5 :	: 1,536 :	: 13 :
November 1926	: 1,510 :	: 101.0 :	: 1,495 :	: 14 :
Percent change	: : :	: : :	: -2.7 :	: +7.7 :
March 1931	: 1,431 :	: 100.2 :	: 1,428 :	: 14 :
May 1931	: 1,462 :	: 101.4 :	: 1,442 :	: 12 :
Percent change	: : :	: : :	: +1.0 :	: -14.3 :
Absolute aver- age percent change <u>5/</u>	: : :	: : :	: 1.8 :	: 11.0 :

1/ Table 18 Appendix.

2/ Table 17 Appendix.

3/ Computed from Columns 1 and 2.

4/ Table 19 Appendix.

5/ Represents average of percentage changes without regard to signs.

Table 4. Changes in sales of fluid milk following changes in retail prices, Boston, Massachusetts, March 1922 to September 1931.

Month	Sales (30-day month basis) <u>1/</u>	Index of seasonal variation <u>2/</u>	Seasonally adjusted sales <u>3/</u>	Retail prices, per quart <u>4/</u>
	Mill. lbs.	Percent	Mill. lbs.	Cents
March 1922	22.0	98.6	22.3	13.5
May 1922	22.8	99.5	22.9	12.5
Percent change			+2.7	- 7.4
June 1922	23.9	102.8	23.2	12.5
August 1922	22.9	103.1	22.2	13.5
Percent change			-4.3	+ 8.0
March 1923	23.0	98.6	23.3	14.5
May 1923	23.6	99.5	23.7	13.5
Percent change			+1.7	- 6.9
June 1923	25.6	102.8	24.9	13.5
September 1923	23.2	100.5	23.1	14.5
Percent change			-7.2	+ 7.4
October 1923	23.6	100.4	23.5	14.5
May 1924	25.2	99.5	25.3	12
Percent change			+7.7	-17.2
June 1924	26.2	102.8	25.5	12
October 1924	24.1	100.4	24.0	14.5
Percent change			-5.9	+20.8
February 1925	24.6	97.6	25.2	14.5
April 1925	25.2	97.2	25.9	13.5
Percent change			+2.8	- 6.9
April 1925	25.2	97.2	25.9	13.5
June 1925	28.0	102.8	27.2	13
Percent change			+5.0	- 3.7
June 1925	28.0	102.8	27.2	13
September 1925	25.7	100.5	25.6	14.5
Percent change			-5.9	+11.5

Table 4. (Continued)

Month	: Sales :(30-day :month :basis) <u>1/</u>	: Index of :seasonal :variation <u>2/</u>	: Seasonally :adjusted :sales <u>3/</u>	: Retail prices, :per quart <u>4/</u>
	: Mill. lbs.:	: Percent	: Mill. lbs.:	: Cents
October 1926	: 28.4	: 100.4	: 28.3	: 14.5
February 1927	: 27.8	: 97.6	: 28.5	: 14
Percent change	:	:	: +0.7	: - 3.4
June 1927	: 29.0	: 102.8	: 28.2	: 14
March 1928	: 29.5	: 98.6	: 29.9	: 15.5
Percent change	:	:	: +6.0	: +10.7
March 1928	: 29.5	: 98.6	: 29.9	: 15.5
May 1928	: 29.5	: 99.5	: 29.6	: 14.5
Percent change	:	:	: -1.0	: - 6.5
June 1928	: 29.9	: 102.8	: 29.1	: 14.5
September 1928	: 29.4	: 100.5	: 29.3	: 15.5
Percent change	:	:	: +0.7	: + 6.9
November 1930	: 29.1	: 100.7	: 28.9	: 15.5
March 1931	: 30.2	: 98.6	: 30.6	: 12.5
Percent change	:	:	: +5.9	: -19.4
July 1931	: 31.6	: 106.8	: 29.6	: 12.5
September 1931	: 30.1	: 100.5	: 30.0	: 13.5
Percent change	:	:	: +1.3	: + 8.0
Average percent- age change <u>5/</u>	:	:	: -5.8	: +11.9
Average percent- age change <u>6/</u>	:	:	: +3.8	: - 9.3
Absolute average percentage change <u>7/</u>	:	:	: 4.5	: 10.2

1/ Table 20 Appendix.

2/ Table 17 Appendix.

3/ Computed from 1/ and 2/.

4/ Table 21 Appendix.

5/ Represents average of percentage increases in price that were associated with percentage decreases in sales.

6/ Represents average of percentage decreases in price that were associated with percentage increases in sales.

7/ Represents average of percentage changes in price or in sales, without regard to signs, that were associated with opposite changes in sales or in price.



Table 5. Changes in sales of fluid milk following changes in retail prices, Twin Cities, Minnesota, March 1924 to August 1932.

Month and year	Sales 30-day-month basis <u>1/</u>	Index of seasonal variation <u>2/</u>	Seasonally adjusted sales <u>3/</u>	Retail prices per quart <u>4/</u>
	Thousand pounds:	Percent	Thousand pounds:	Cents
March, 1924	11,279	101.4	11,123	11.5
May, 1924	11,720	99.5	11,779	10
Percent change			+ 5.9	- 13.0
July, 1924	11,871	98.0	12,113	10
September, 1924	11,788	100.1	11,776	11
Percent change			- 2.8	+ 10.0
August, 1925	12,570	99.1	12,684	11
October, 1925	12,492	102.5	12,187	12
Percent change			- 3.9	+ 9.1
December, 1925	11,861	98.0	12,103	12
March, 1926	12,246	101.4	12,077	11
Percent change			- 0.2	- 8.3
August, 1927	12,111	99.1	12,221	11
November, 1927	12,608	101.7	12,397	12
Percent change			+ 1.4	+ 9.1
December, 1929	12,980	98.0	13,245	12
February, 1930	13,571	101.0	13,437	11
Percent change			+ 1.4	- 8.3
October, 1930	13,543	102.5	13,213	11
January, 1931	12,961	98.8	13,118	10
Percent change			- 0.7	- 9.1
November, 1931	12,724	101.7	12,511	10
January, 1932	12,203	98.8	12,351	9.5
Percent change			- 1.3	- 5.0
January, 1932	12,203	98.8	12,351	9.5
March, 1932	12,543	101.4	12,361	8.5
Percent change			+ 0.1	- 10.5
June, 1932	12,534	98.1	12,777	8.5
August, 1932	12,717	99.1	12,832	8
Percent change			+ 0.4	- 6.3
Average percentage: change <u>5/</u>			- 3.3	+ 9.6
Average percentage: change <u>6/</u>			+ 2.0	- 9.5
Absolute average percentage change <u>7/</u>			2.4	9.5

1/ Table 22, Appendix.

2/ Table 17, Appendix.

3/ Computed from columns 1 and 2.

4/ Table 23, Appendix.

5/ Represents average of percentage increases in price that were associated with percentage decreases in sales.

These unusual cases occur in periods when business conditions were changing rapidly and appear to be adequately explained by changes in these conditions.

Data contained in the reports of the Market Administrators for the various markets operating under Federal licenses also provide some indication of the consumer response to price changes in these markets. Only those markets where Class I milk was defined as whole milk, sold or distributed for consumption as whole milk, and where the size of the sales area has remained constant are considered. These data have been received for such a short period that it was impossible to compute a satisfactory index of seasonal variation and adjust sales for seasonal variation, except where other sales data from the same market were available for earlier periods.

The results of this latter study must be interpreted with some caution since there are other factors than price which influence sales. Sudden changes in temperature influence the volume of milk sold. There is a seasonal variation in total fluid sales, which is in part influenced by the vacation movement, and this in turn is affected by the prosperity of the community. Moreover, in a period of several months in recent years business conditions and consumer incomes have changed materially. These considerations limit somewhat the significance of the results of the study. It is important to note, however, that the results supplement the results obtained in the other studies, showing that changes in price are associated with changes in fluid milk sales, and that the changes in prices are relatively much greater than the changes in sales. The data are shown in Table 5 and indicate that an average change of 3.4 percent in sales is associated with an average opposite change of 12.3 percent in price.

It appears from the foregoing that the demand for milk is highly inelastic, especially when retail price changes are relatively small. When price changes are relatively large, it is probable that the change in consumption may be somewhat greater than when the changes in the retail price are relatively small, although the change in sales is probably less than directly proportional to the change in price, although the data that are available relative to this point are inconclusive. <sup>17/</sup> Stated differently, while the demand for milk is less inelastic when large, rather than small, price changes are considered, the coefficient of elasticity of demand still appears to be considerably less than unity.

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<sup>17/</sup> See also Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, Technical Bulletin No. 73, U. S. Department of Agriculture.

Table 6. Summary of changes in sales and in prices in specified cities.

Sales area and period	Estimated average daily Class I sales	Retail delivery price, per quart
	Pounds	Cents
Boston:		
April 1934 to September 1934	1,618,000	11
October 1934 to February 1935	1,592,000	12
Percentage change	- 1.6	+ 9.1
March 1935 and April 1935	1,576,000	13
Percentage change	- 1.0	+ 8.3
Detroit:		
April 1934 to June 1934	1,221,000 <sup>1/</sup>	19
July 1934 to February 1935	1,167,000 <sup>1/</sup>	11
Percentage change	- 4.4	+10.0
March 1935	1,153,000 <sup>1/</sup>	12
Percentage change	- 1.2	+ 9.1
Evansville:		
May 1934 to September 1934	43,764	9
October 1934 to March 1935	41,635	9.5
Percentage change	- 4.9	+ 5.6
Grand Rapids:		
August 1934 and September 1934	127,123	9
October 1934 to March 1934	127,208	10
Percentage change	0.0	+11.1
Kalamazoo:		
July 1934 to November 1934	36,733	10
December 1934 to February 1935	40,720	8
Percentage change	+10.9	-20.0
March 1935	39,397	10
Percentage change	- 3.2	+25.0
Absolute average percentage change <sup>2/</sup>	3.4	12.3

Tables 24 to 28, inclusive, appendix.

<sup>1/</sup> Adjusted for seasonal variation.

<sup>2/</sup> Represents average of percentage changes without regard to signs.



On the basis of the foregoing, it appears that it would require a very marked decrease in price in order that any appreciable seasonal increase in the volume of milk produced for use as fluid milk be moved into consumption as fluid milk in the market as a whole. It is rather generally recognized that changes in the prices received by producers that are associated with changes in retail prices are relatively greater than the changes in retail prices. This is due to the fact that some of the more important elements in the gross margin between the price received by producers and the price at which the milk is sold at retail (transportation costs, country station charges and the like) do not change with changes in volume; in other words, they are fixed charges per unit. This being the case, the seasonal variation in prices received by producers would be relatively greater than the seasonal variation in retail prices, which, as was pointed out before, would have to be quite marked in order that any appreciable seasonal increase in the production of milk produced for use as fluid milk within the supply area be consumed as fluid milk. Over a period of time, the market seasonal variation in prices received by producers would tend to be reduced, since producers would change the seasonality of their production in order to sell a larger volume of milk at the time of year when prices were seasonally high, and would reduce their sales during the period when prices were seasonally low. However, it would be greatly to the advantage of some producers to change the seasonality of their production and little, if any, to others, depending upon the type of farm organization and operation followed by each. Thus, given time for economic forces to work out their full effects, the seasonal variation in supplies and prices received by producers, and consequently the seasonal variation in retail prices, would be much less marked than would appear to be the case at first.

The second limitation to lowering prices on the basis of the seasonal increase in the volume of milk produced for use as fluid milk by any dealer is that, in order to hold the new customers later when supplies in the market are short, dealers would have to develop new sources of supply during the short season in order to have sufficient milk to meet the requirements of their larger business. These new sources involve an expense in development (see Part II, Section G) and may also have an equal or greater seasonal variation in production the following year. The alternative is to raise prices when supplies are short and thereby reduce the customer's takings or to fail to serve the added customer. Either of these latter procedures is sure to lead to dissatisfaction.

The foregoing facts and considerations suffice to explain in large part why retail prices of fluid milk tend to remain practically constant on a seasonal basis. Thus, instead of retail prices showing marked seasonal variation of such magnitude that the seasonal changes in volume of milk produced for use as fluid milk be moved into consumption as fluid milk, retail prices remain practically constant seasonally and seasonal changes in demand are reflected in greater or less takings of fluid milk, as the case may be, at the ruling level of prices. Such seasonal variations in demand are generally quite small, and are much less than the seasonal variation in the volume of milk produced for use as fluid milk that obtains in most milk market supply areas. (See Table 17, Appendix.) <sup>18/</sup> Thus, unless the volume of milk produced for use as fluid milk is equal to fluid milk requirements on a seasonal basis, the seasonal increase in the volume of milk produced for use as fluid milk is diverted to uses other than fluid milk. Stated differently, the seasonal increase in the volume of milk produced for use as fluid milk becomes a seasonal excess over fluid milk requirements. In the next part of the analysis of the price structure for milk within a milk shed, an explanation of the development of class prices, or the classified price plan of payment for milk by distributors, will be set forth.

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<sup>18/</sup> See also Ross, H. A., The Marketing of Milk in the Chicago Dairy District, Ill. Agr. Exp. Sta. Bull. No. 269, and Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, U. S. Dept. of Agr. Tech. Bull. No. 73.

#### Part IV

##### The Price Structure for Milk within a Milk Shed - The Development of Class Prices.

The analysis of the price structure for milk within a milk shed will now be focussed upon the manner in which class prices or, stated more precisely, the classified price plan of selling milk to distributors, develops in a milk market. At this point it is important to set forth as clearly as is possible in a short paper the difference between the classified price plan and the rating plan.<sup>19/</sup> The classified price plan is a method of selling milk to distributors, while the rating plan is a method of prorating to producers the proceeds of sales to distributors. The classified price plan does not necessarily need to be complemented by the operation of a rating plan, and classified price plans are often used where no rating plan is in operation. On the other hand, the rating plan under certain forms of administration becomes in effect a classified price plan and a plan for prorating to producers the proceeds of sales to distributors. For example, in some markets, producers associations bargain for "base" and "surplus" prices; "bases" are established for individual producers for which "base" milk producers receive "basic" prices. Producers are shifted among distributors in such fashion that the total bases of producers delivering milk to any particular distributor are approximately equal to such distributor's sales of fluid milk. However, pricing milk to distributors in accordance with a classified price plan is usually more precise than that just noted, with a more strict accounting and pricing of milk according to use, and is not necessarily operated in conjunction with a base-rating plan.

For the purposes of this paper, the classified price plan is defined as a method of selling and pricing milk to distributors in accordance with the use made thereof, while the base-rating plan is defined as a method of prorating to producers the proceeds of sales to distributors.

It has already been demonstrated (see Part II) that, assuming little seasonal variation in the demand for milk, certain supply characteristics operate so that, given differences in individual producers' seasonal output curves, and providing that economic forces have time to work out their full effects, producers who produce a relatively constant volume of milk throughout the year will receive higher prices, other factors accounted for, than producers who produce a relatively more variable volume of milk throughout the year. Furthermore, the producers who produce a relatively constant volume of milk throughout the year will tend to become associated with highly specialized fluid milk distributors (highly specialized in the sense that the operating unit is engaged almost entirely in the distribution of fluid milk, while those who produce a relatively more variable quantity throughout the year will tend to

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<sup>19/</sup> Often called base-surplus, base-rating, and the like.



become associated with distributors who are less highly specialized (in the sense noted above). The assumption that there is little seasonal variation in the demand for milk was then examined, (Part III) and it was found that certain factors operate so that there is marked seasonal uniformity in retail fluid milk prices, and seasonal changes in demand, which are very small in most cases, are reflected in slight seasonal changes in the quantities of fluid milk consumed at practically constant prices, rather than seasonal changes in the quantities of milk consumed that are associated with seasonal changes in retail fluid milk prices. It is in the analysis of the seasonal behavior of retail fluid milk prices, and the effects such behavior would tend to have upon the prices received by producers, that the reasons for the development of the seasonal excess were ascertained.

Once the development of the seasonal excess has been demonstrated, the basis for the effort on the part of specialized fluid milk distributors to secure a uniform volume of milk throughout the year becomes apparent. Under these circumstances, the argument that specialized fluid milk distributors tend to secure milk to meet the needs of their fluid milk trade, which are practically constant seasonally, from producers who produce a relatively uniform volume of milk throughout the year, such producers receiving higher prices, other factors accounted for, than producers who produce a relatively more variable volume of milk throughout the year and, consequently, tend to become associated with less highly specialized distributors, applies with especial force.

It should be noted that it is not contended that distributors select producers who produce a relatively uniform volume of milk throughout the year at random throughout the milk shed. It is rather well recognized that, generally speaking, producers within a particular type of farming area have markedly similar seasonal output curves. Thus, a distributor who wishes to secure a uniform supply of milk throughout the year can usually operate in an area or areas where a fairly large supply of such milk is available.

The situation treated above with respect to the procurement of milk by distributors is strikingly similar to the situation that obtains when distributors purchase their milk in accordance with the provisions of a formal classified price plan. In the former situation, there is a close approximation to the purchase of milk on a classified price basis, considering the market as a whole, due to the fact that those distribution units which are highly specialized, i.e., which distribute by far the larger portion of the milk they secure as fluid milk, tend to pay higher prices for milk than distribution units which are less highly specialized, i.e., which utilize relatively more of the milk they secure as manufacturing milk. The difference between this method of purchasing milk and a formal classified price method of purchasing is merely one of the degree and precision with which milk is classified in accordance with the use made thereof.

Producers' cooperative associations have recognized the principles noted above in bargaining with distributors and have developed the system of formal class prices whereby milk is priced by cooperatives to distributors in accordance with the form in which milk is sold by distributors. Thus, a formal system of class prices, intended to secure the same result, is substituted for the rather informal system of class prices discussed above. The distributor with the larger use of milk in fluid sales pays a higher average price than the one with a considerable utilization in manufactured products. The system of formal class prices has the advantage for the producers' cooperative association of simplifying the bargaining arrangements, since it automatically establishes the basis of payment for the different dealers once the general terms for the market are determined. Without class prices, individual bargains would be necessary with each dealer in order to insure producers the full value of their particular milk, and the association would be exposed to the criticism of over- or under-pricing the milk of particular producers and over- or undercharging particular distributors. Class prices dispose of this necessity for individual bargains and result in payments corresponding to the prices which would have been arrived at under proper individual bargaining.

In addition to the seasonal factors treated above which lead to the development of a classified price plan of selling milk to distributors, there are certain types of organization of supply that would lead to the development of a formal class price system, even though the volume of milk produced throughout the year and the volume of milk consumed in the market throughout the year were precisely correlated, except for daily variations in demand and supply. In such cases, the reason for the development of a classified price plan is to be found in the fact that there must be brought to market a volume of milk in excess of daily average sales, such excess volume being needed to meet daily variations in sales.

It is rather well recognized that there are significant variations in the amount of milk sold from day to day in a fluid milk market, such variations being attributable to such factors as (1) consumption and working habits of the people which tend to show a regular day of the week variation, (2) holidays, and (3) changes in temperature.

Consumption and working habits of the people are such as to cause a rather regular day of the week variation in the sales of various products. Most business concerns, for example, do not operate on Sunday and many also close operations on Saturday afternoons. The Sunday dinner is frequently a heavier and more elaborate meal than that served on week days. These factors affect wholesale and retail sales of the various products differently. Wholesale sales of milk and cream are ordinarily low on Sunday, with sales to restaurants and cafeterias also low on Saturday. Sales of cream to stores are usually large on Saturday, Friday and Monday. Route sales of milk and cream are heavier on Sunday.



Examples of the variation in the average sales on various days of the week for several markets are given in tables 6 to 10, inclusive. In general, the greatest variation is found in cream sales, the range for the New York market for all cream being from 84.7 percent of the average daily sales for the week on Sunday to 127.9 percent on Saturday. For all milk in the same market the range was from 90.2 percent of the average daily sales for the week on Sunday to 102.8 percent on Friday. <sup>20</sup> Examination of the tables indicates a greater variation in wholesale sales of fluid milk than of the retail sales, but in the case of cream the reverse may be the case. These variations differ in the various sections of a large city depending largely upon the economic status of the consumers and the number of persons who lunch away from home during the day. <sup>21</sup> Since dealers have varying proportions of retail and wholesale business and serve different sections of the population, they are unlikely to have variations in sales corresponding to those in the market as a whole. Some dealers will have larger variations in sales and others smaller variations. The difference in the character of the business of dealers and the consequent differences of sales by day of the week, even for the same type of products, are shown in tables 11 to 14, inclusive. These tables show the variation in the sales of Milwaukee, Wisconsin, dealers during the week of April 22 to 28, 1934. The daily sales of each dealer have been shown as a percentage of his own average daily sales for the week. This variation in sales among dealers means that the excess milk above the average daily sales of the market is higher than would be the case if dealers had available some method of integrating their individual fluctuations in sales with other dealers having different fluctuations, through a shifting of milk between them.

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<sup>20</sup>/ Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, United States Department of Agriculture - Technical Bulletin 73, 1928.

<sup>21</sup>/ Ibid, p. 32.



Table 7. Daily fluctuation in sales of milk and cream in the New York Metropolitan Area, 1924.

Type of sale	Percentage of average daily sales for the week									
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
<u>Retail sales of milk</u>										
Qts., Grade B	103.7	99.5	99.6	99.8	99.2	99.3	98.9			
Qts., Grade A	100.5	100.0	100.2	100.3	99.8	99.8	99.4			
Qts., Certified	98.9	100.9	99.8	100.6	100.6	100.3	98.9			
Qts., Buttermilk	76.4	106.9	106.5	106.3	102.9	106.5	94.5			
Pts., Grade B	77.6	106.8	106.9	108.0	108.0	107.2	85.5			
1/2 Pts., Condensed	106.0	96.9	99.0	105.8	93.8	94.7	103.8			
<u>Retail sales of cream</u>										
1/2 Pts., Light	108.0	98.0	99.7	103.5	97.8	96.6	96.4			
1/2 Pts. Extra Heavy	176.3	83.4	88.8	92.3	86.2	82.1	90.9			
<u>Wholesale sales of milk</u>										
Qts., Grade B	92.8	99.4	100.8	99.6	100.8	102.2	104.4			
Pts., Grade B	46.8	115.2	116.8	115.7	118.4	115.9	71.2			
Bulk, Grade B	73.5	107.3	103.1	104.2	104.3	107.2	100.4			
Condensed Milk	42.7	114.5	86.9	93.4	83.6	130.6	148.3			
Buttermilk	34.4	126.5	106.0	109.2	114.4	115.0	94.5			
<u>Wholesale sales of cream</u>										
Light	42.3	118.9	95.6	93.7	94.9	121.8	132.8			
Extra Heavy	72.9	107.7	88.9	91.4	86.6	112.2	140.3			

Compiled from "Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York," by H. A. Ross, United States Department of Agriculture, Technical Bulletin No. 73, June 1928.

Table 8. Daily fluctuation in retail, wholesale and total sales of fluid milk and cream in Reading, Pennsylvania.

Type of sale	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Milk:							
Retail	107.49	95.18	98.62	98.54	99.01	99.18	101.97
Wholesale	61.36	106.27	102.46	102.86	104.50	115.20	107.35
Total	91.90	98.93	99.92	100.00	100.86	104.60	103.79
Cream:							
Retail	136.07	87.18	99.62	96.63	87.51	85.99	107.01
Wholesale	77.21	102.33	96.32	111.62	105.01	95.83	111.67
Total	112.91	93.14	98.32	102.53	94.40	89.87	108.84

Compiled from "Distribution and Consumption of Milk in Reading, Pennsylvania,"  
by T. K. Cowden, Pennsylvania Agricultural Experimental  
Station, Technical Bulletin 614, November 8, 1933.

Table 9. Daily fluctuation <sup>1/</sup> in sales of certain dairy products in Chicago and suburbs.

Type of sale	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Milk, Quarts	104.7	97.2	99.9	99.3	100.4	100.4	100.0
Milk, Pints	64.3	100.8	104.2	104.9	104.4	105.2	81.3
22% Cream, 1/2 Pints	153.7	93.7	100.7	99.3	103.1	97.6	99.3
32% Cream, 1/2 Pints	311.9	76.4	88.1	96.3	107.3	93.0	115.3

Compiled from "The Marketing of Milk in the Chicago Dairy District," Illinois Agricultural Experiment Station Bulletin No. 269.

<sup>1/</sup> Based on average retail sales to more than 200,000 families during the three-year period 1920-1922. Average sales for the five days Tuesday, Wednesday, Thursday, Friday and Saturday = 100 percent.



Table 10. Daily fluctuation in sales and receipts of milk and cream for the Pittsburgh market, during the last two weeks of July, 1933. 1/

Type of sale	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Regular fluid milk	76.25	105.16	102.56	100.69	102.01	109.44	103.90
Special fluid milk	95.09	97.74	103.66	97.06	105.17	96.31	104.96
Total fluid milk	76.67	104.99	102.58	100.61	102.08	109.15	103.92
Fluid Cream	92.36	92.41	100.60	93.22	105.57	99.82	116.02
Dealer purchases of milk and cream	98.35	97.26	100.21	102.83	101.31	98.55	101.48

Compiled from "The Distribution and Consumption of Milk in Allegheny County, Pennsylvania," by T. K. Cowden, and C. G. Gifford, Pennsylvania Agricultural Experiment Station Technical Paper 641, March 13, 1934.

1/ Based on reports received from 35 dealers handling 77 percent of the fluid milk sales in the market.

Table 11. Daily fluctuation in the sales of milk and cream in Williamsport, Pennsylvania, March, April and May 1933.

Percentage of average daily sales for the week							
Type of sale	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
<u>Milk</u>							
Retail	102.35	97.81	99.99	100.04	99.71	99.69	100.40
Wholesale	65.86	104.23	102.25	105.63	105.70	111.06	105.25
Total	94.94	99.17	100.80	101.15	100.76	102.97	101.09
<u>Cream</u>							
Retail	138.75	97.51	97.81	96.18	90.10	88.15	101.52
Wholesale	88.92	95.35	93.73	102.59	93.77	106.94	118.20
Total	111.75	93.14	95.16	98.23	92.46	99.07	110.19

Compiled from "Distribution and Consumption of Milk in Williamsport, Pennsylvania," by T. K. Cowden, Pennsylvania Agricultural Experiment Station Technical Paper No. 615, November 8, 1933.

Holidays also exert a considerable influence upon milk and cream sales, since these are occasions for special activities. On certain of these days, notably during the summer, there is a considerable movement of people out of the city, while other holidays are feast days. In general, milk consumption appears to be somewhat decreased on holidays except for increases at Thanksgiving and Christmas. Sales of extra heavy cream at Christmas and Thanksgiving increase by over eighty per cent. Data for the New York market are given in Table 15.

Temperature is also an important factor in short-time variations in the demand for milk. In general, an increase in temperature is associated with an increase in demand, and a decrease in temperature is associated with a decrease in demand. In the New York market it was found that temperature changes in winter are more marked than in summer but that a change of a given number of degrees produced about three times as great a change in summer as a similar change in the winter. <sup>22/</sup>

On the basis of the foregoing, it appears that a considerable volume of milk in excess of average daily sales must be brought to market in order to have a supply sufficient to cover daily variations in the demand for milk. Few data are available relative to the necessary size of this daily excess, hereinafter termed the operating reserve, but it appears to range from ten to twenty percent of average daily sales at least, and perhaps higher in some markets.

If the producers in the market so organize their service of supply to the distributors so as to remove from them entirely or even partly the necessity of carrying this "operating reserve", producers can secure a higher price for the delivered milk since the distributor has always available all the milk he needs for his fluid milk trade and is also relieved of the necessity of procuring his milk from a large number of individual producers and is under no necessity of taking milk, a portion of which must be disposed of in channels other than fluid milk. This is one of the services which operating producers' cooperative associations commonly provide distributors purchasing from them. They are thus able to sell distributors milk at a higher price than they are able to secure when distributors are not so serviced. There would thus arise what amounts to a class price for milk, distributors paying a certain price for the milk called for from the association and used for fluid purposes, with the association utilizing the remaining milk in the most profitable possible manner but in uses yielding somewhat lower returns than the fluid sales. The difference between the prices charged distributors for

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<sup>22/</sup> Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, United States Department of Agriculture Technical Bulletin No. 73, pp. 39-44.



Table 12. Daily fluctuation in wholesale sale of  
pints of regular milk, Milwaukee, April  
21-28, 1934.

Company:	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wed.	Thurs.	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
H	103.0	113.2	123.5	72.1	154.4	72.1	154.4
I	110.3	133.6	135.2	139.4	140.4	131.7	8.7
M	7.8	134.4	127.7	128.2	131.0	137.3	33.6
R	73.3	115.1	95.5	102.1	109.9	124.3	79.8
S	25.9	129.6	51.9	25.9	181.5	155.6	129.6
D	2.1	85.6	139.1	152.0	128.5	128.5	64.2
K	59.1	106.8	88.6	70.5	213.6	75.0	86.4
O	35.7	123.5	109.8	120.8	109.8	118.0	82.4
T							
U	0.0	116.6	116.7	116.7	116.7	116.7	116.7
A	215.5	90.0	81.5	78.6	82.8	79.9	71.7
C	37.7	122.2	101.6	146.8	90.3	112.9	56.5
V	65.8	103.5	103.1	112.9	116.9	96.7	98.1
B	15.6	132.4	131.7	133.8	123.8	122.8	39.9
E	0.0	197.1	156.3	149.5	156.3	13.6	27.2
F	0.0	0.0	0.0	700.0	0.0	0.0	0.0
L	61.8	102.9	128.7	113.2	139.0	72.0	82.4
P							
Q							
Y	100.0	0.0	0.0	200.0	0.0	200.0	200.0
Weighted:							
average:							
for all:	69.6	119.1	115.6	116.5	117.6	112.6	49.0
Dealers:							

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration, and Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.

Table 13. Daily fluctuation in retail sales of  
quarts of regular milk, Milwaukee,  
April 22-28, 1934

Company	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
H	91.9	96.2	103.0	98.6	103.6	102.9	103.8
I	99.6	97.6	100.2	100.2	100.7	100.8	100.9
M	100.2	96.2	99.0	100.1	100.9	99.7	103.9
R	102.2	96.5	101.7	98.8	100.8	98.0	102.0
S	99.3	97.4	102.2	98.3	99.7	98.7	104.4
D	96.4	101.1	95.8	102.8	102.7	97.8	103.4
J	100.1	103.3	98.9	98.5	92.7	99.2	107.3
K	99.3	97.4	100.8	100.0	100.2	100.3	102.0
U	98.7	99.6	100.3	99.9	99.1	100.2	102.0
A	100.7	97.3	98.1	100.0	101.1	99.2	103.6
C	97.3	103.4	99.7	95.4	104.1	98.9	101.2
V	99.4	96.9	101.8	101.3	102.8	99.2	98.6
B	99.8	98.1	97.8	101.0	101.9	97.6	103.8
E	96.1	100.7	95.1	103.6	102.7	96.3	105.3
F	95.3	102.4	95.5	102.9	101.4	98.6	103.9
G	95.1	99.0	100.4	99.2	101.2	100.1	105.0
L	97.9	96.3	99.4	103.5	103.7	98.8	100.4
P	99.0	98.5	99.3	100.5	100.1	101.0	101.6
Q	98.9	98.9	99.3	96.5	103.9	99.9	102.6
Y	99.0	100.8	97.4	99.8	100.0	100.8	102.2
Weighted average for all dealers	99.7	97.9	98.4	100.4	101.3	99.0	103.3

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration and the Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.

Table 14. Daily fluctuation in wholesale sales of  
quarts of 18% cream, Milwaukee, April 22-  
28, 1934

Company	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
H	35.9	89.7	80.7	107.7	116.7	98.7	170.6
I	78.4	106.4	95.2	89.6	95.2	117.6	117.6
M	80.6	115.1	96.7	71.4	87.5	78.3	170.4
R	100.0	76.5	100.0	70.6	129.4	94.1	129.4
S	116.7	53.3	116.7	58.2	116.7	116.7	116.7
D	0.0	0.0	0.0	0.0	700.0	0.0	0.0
J	33.3	166.7	66.7	100.0	100.0	200.0	33.3
K	83.1	99.0	87.9	95.8	97.4	111.7	125.1
O	9.5	131.8	113.0	116.1	103.6	119.3	106.7
T							
U	53.8	107.7	107.7	107.7	107.7	107.7	107.7
A	97.6	91.0	101.6	88.5	101.6	90.7	129.2
C	65.1	114.0	146.4	97.7	97.7	65.1	114.0
V	75.4	86.2	53.8	96.9	96.9	118.5	172.3
B	72.6	103.6	94.7	108.9	95.8	101.8	122.6
E	89.1	50.9	127.3	101.8	101.8	76.4	152.7
F	116.7	58.3	116.7	116.7	0.0	58.3	233.3
G	94.2	67.4	114.4	107.7	107.7	94.2	114.4
L	311.1	0.0	77.8	0.0	77.8	155.5	77.8
P	41.2	41.2	41.2	123.5	41.2	82.4	329.3
Q	0.0	0.0	0.0	0.0	0.0	700.0	0.0
Y	140.0	93.3	93.3	93.3	186.8	0.0	93.3
Weighted							
Average	77.0	99.9	95.9	97.7	98.8	101.5	129.2
all deal- ers							

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration and the Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.



Table 15. Daily fluctuation in retail sales of half pints of 18% cream, Milwaukee, April 22-28, 1934

Company	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
H	119.5	85.4	97.4	119.5	78.5	100.7	99.0
M	152.0	74.7	92.8	93.1	90.7	89.6	107.1
R	206.1	76.4	84.0	81.5	89.1	76.4	86.5
S	301.3	35.4	53.2	57.6	79.7	66.5	106.3
D $\frac{1}{2}$	211.7	78.4	96.3	0.0	88.0	101.8	123.8
K $\frac{2}{2}$	165.6	82.8	90.3	94.1	86.6	82.8	97.8
E	164.0	84.0	89.3	97.3	73.4	84.0	108.0
G	95.5	190.8	0.0	79.5	143.2	95.5	95.5
Weighted:							
average :	159.9	76.5	91.3	88.0	88.6	89.3	106.4
all dealers :							

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration and the Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.

1/ 19%

2/ 18 $\frac{1}{2}$ %

Table 16. Effect of holidays on sales of retail milk and cream in the New York Metropolitan Area - 1924.

		Change in sales <u>1/</u>											
Product	New Year's Day	Lincoln's Birth-day	Washington's Birth-day	Easter	Pass-over week	Memorial Day	Fourth of July	Labor Day	Yom Kippur	Thanks-giving	Christmas		
	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent
Quarts - Grade B	- 1.4	+ 1.2	- .6	0	- 1.5	- 1.2	- 2.4	- 6.0	0	+ .6	+ 3.0		
Quarts - Grade A	0	- 1.2	- .6	- .6	- 1.4	- 1.2	- 2.4	- 4.8	0	+ .6	+ 1.2		
Quarts - Certified	- 3.0	- 1.8	- 2.9	.0	- 1.8	- 1.2	- 1.8	- 6.5	- .6	- 1.2	- 1.8		
Pints - Grade B	- 24.0	- 1.4	- 20.7	+ 1.6	- 2.6	- 26.5	- 28.3	- 29.8	- 5.5	- 25.1	- 26.1		
Extra heavy cream	+ 44.0	+ 2.1	+ 11.1	+ 2.8	.6	+ 23.3	+ 27.8	- 7.8	- 1.9	+ 83.4	+ 83.7		

Compiled from "Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York," United States Department of Agriculture, Technical Bulletin No. 73 - June, 1928.

1/ Percentage change from the average corrected sales for the three days preceding and the three days following the holiday.

milk that is sold by them as fluid milk and the price the association receives for milk in other uses is, other factors being the same, the premium distributors are willing to pay for milk when such milk is furnished them in conformance with their daily needs.

Although there may be other factors that, in a particular market, also contribute to the development of a system of class prices, the foregoing treatment suffices to explain the more important considerations obtaining that, taken as a whole, lead to the development of class prices in most important milk markets.



Literature Cited

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- Ross, H. A., Cornell University, Agri. Exp. Station Bulletin No. 527.
- Ross, H. A., The Marketing of Milk in the Chicago Dairy District, Illinois Agri. Exp. Station Bulletin No. 269.
- Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, U. S. Dept. of Agri. Technical Bulletin No. 73.

A P P E N D I X

Table 17. Index numbers of seasonal variation in fluid milk sales by distributors purchasing from cooperative associations.

	Baltimore	Boston	Twin Cities
	Percent	Percent	Percent
January	97.7	96.9	98.8
February	96.6	97.6	101.0
March	100.2	98.6	101.4
April	100.4	97.2	101.8
May	103.1	99.5	99.5
June	101.4	102.8	98.1
July	99.0	106.8	98.0
August	96.4	103.1	99.1
September	100.5	100.5	100.1
October	103.0	100.4	102.5
November	101.0	100.7	101.7
December	98.7	95.9	98.0
Average	100.0	100.0	100.0

Index numbers were calculated by the median-link-relative method from data of fluid milk sales, omitting those months in which price changes occurred. For basic data used in computing the index for Baltimore see tables 17 and 18; for Boston, see tables 19 and 20; and for Twin Cities, see tables 21 and 22.



1/  
Table 18. Fluid milk sales of Maryland State Dairymen's Association, December 1923-December 1931.

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000
	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons
1923	:	:	:	:	:	:	:	:	:	:	:	:	:
1924	: 1,171	: 1,207	: 1,230	: 1,237	: 1,262	: 1,254	: 1,262	: 1,287	: 1,313	: 1,367	: 1,368	: 1,348	: 1,275
1925	: 1,347	: 1,388	: 1,428	: 1,445	: 1,489	: 1,552	: 1,491	: 1,439	: 1,525	: 1,578	: 1,508	: 1,490	: 1,468
1926	: 1,476	: 1,489	: 1,517	: 1,530	: 1,592	: 1,570	: 1,539	: 1,490	: 1,544	: 1,582	: 1,510	: 1,481	: 1,525
1927	: 1,480	: 1,512	: 1,549	: 1,536	: 1,562	: 1,558	: 1,538	: 1,485	: 1,554	: 1,598	: 1,562	: 1,558	: 1,541
1928	: 1,527	: 1,549	: 1,571	: 1,549	: 1,596	: 1,562	: 1,517	: 1,481	: 1,506	: 1,575	: 1,555	: 1,514	: 1,542
1929	: 1,517	: 1,526	: 1,547	: 1,551	: 1,673	: 1,566	: 1,528	: 1,495	: 1,571	: 1,575	: 1,555	: 1,510	: 1,551
1930	: 1,497	: 1,507	: 1,543	: 1,534	: 1,592	: 1,561	: 1,517	: 1,493	: 1,587	: 1,469	: 1,509	: 1,465	: 1,523
1931	: 1,434	: 1,450	: 1,431	: 1,470	: 1,491	: 1,462	: 1,435	: 1,407	: 1,468	: 1,457	: 1,414	: 1,376	: 1,441

Compiled from "History of Maryland State Dairymen's Association," Appendix Table VI.

1/ Adjusted to 30 day month.

Table 19. Retail prices of milk per quart delivered in Baltimore, 1924-1931

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
1924	13	13	13	13	13	13	13	13	13	13	13	13	13
1925	13	13	13	13	13	13	13	13	13	13	13	13	13
1926	13	13	13	13	13	13	13	13	13	14	14	14	13
1927	14	14	14	14	14	14	14	14	14	14	14	14	14
1928	14	14	14	14	14	14	14	14	14	14	14	14	14
1929	14	14	14	14	14	14	14	14	14	14	14	14	14
1930	14	14	14	14	14	14	14	14	14	14	14	14	14
1931	14	14	14	13	12	12	12	12	12	12	12	12	12

Compiled from reports of the United States Department of Labor, Bureau of Labor Statistics.

Table 20. Monthly fluid milk sales<sup>1</sup>/<sub>by large dealers in Boston, 1922-1931.</sub>

Year:	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.
	pounds	pounds	pounds	pounds	pounds	pounds	pounds	pounds	pounds	pounds	pounds	pounds	pounds
1922:	21.4	21.7	22.0	21.5	22.8	23.9	23.4	23.9	22.6	22.5	22.7	21.3	22.4
1923:	22.0	22.4	23.0	22.6	23.6	25.6	24.5	23.7	23.2	23.6	23.5	22.6	23.4
1924:	22.9	23.1	24.1	24.5	25.2	26.2	27.2	26.1	24.6	24.1	24.4	23.8	24.7
1925:	24.2	24.6	25.2	25.2	25.5	28.0	27.2	26.3	25.7	25.8	26.1	25.4	25.8
1926:	25.9	26.1	26.5	26.5	27.0	27.6	28.9	27.5	27.2	28.4	28.4	26.6	27.2
1927:	27.2	27.8	28.6	28.4	27.9	29.0	29.8	28.2	28.2	28.7	28.1	27.8	28.3
1928:	28.7	29.0	29.5	28.9	29.5	29.9	31.3	31.4	29.4	30.6	31.1	29.8	29.9
1929:	30.5	30.8	31.5	31.0	32.0	32.8	32.8	31.7	31.0	30.4	30.7	29.1	31.2
1930:	29.6	30.0	30.4	30.2	31.2	31.4	30.5	29.7	30.6	29.7	29.1	28.2	30.1
1931:	30.0	29.6	30.2	29.9	31.8	30.2	31.6	30.6	30.1	30.3	29.7	28.5	30.2

<sup>1</sup>/ Adjusted to thirty-day month.

Data supplied by W. H. Bronson of the New England Milk Producers' Association.



Table 21. Retail prices of milk per quart delivered in Boston, 1922-1931.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	: Cents:	: Cents:	: Cents:	: Cents:	: Cents:	: Cents:	: Cents:	: Cents:	: Cents:	: Cents:	: Cents:	: Cents:
1922	13.5	13.5	13.5	12.5	12.5	12.5	13.5	13.5	13.5	14.5	14.5	14.5
1923	14.5	14.5	14.5	13.5	13.5	13.5	14.0	14.5	14.5	14.5	15.5	15.0
1924	14.5	13.5	12.5	12.0	12.0	12.0	12.5	13.5	14.5	14.5	14.5	14.5
1925	14.5	11.5	13.5	13.0	13.0	13.0	14.0	14.5	14.5	14.5	14.5	14.5
1926	14.5	14.5	11.5	14.5	14.5	13.5	14.5	14.5	14.5	14.5	14.5	14.0
1927	14.0	14.0	14.0	14.0	14.0	14.0	14.0	15.0	15.0	15.5	15.5	16.5
1928	16.0	15.5	15.5	14.5	14.5	14.5	14.5	15.5	15.5	15.5	15.5	15.5
1929	15.5	15.5	15.5	15.5	15.5	14.5	15.5	15.5	15.5	15.5	15.5	15.5
1930	15.5	15.5	15.5	15.5	14.5	14.5	14.5	15.5	15.5	15.5	15.5	13.5
1931	13.5	13.5	12.5	12.5	12.5	12.5	12.5	13.5	13.5	13.5	13.5	10.0
Data supplied by J. H. Bronson of the New England Milk Producers' Association.												

Note: During the period April 1, 1923 to September 4, 1927 some dealer's prices were 1/2 cent higher than the prices indicated above.

Table 22. Fluid milk sales 1/ to distributors by Twin City Milk Producers' Association, 1924-1932.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000
: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds
1924	11,098	11,541	11,279	11,876	11,720	11,814	11,871	11,799	11,788	12,318	12,225	11,843
1925	11,958	12,265	12,572	12,710	11,720	12,572	12,210	12,570	13,052	12,492	12,421	11,861
1926	12,079	12,178	12,246	12,331	12,522	12,170	12,004	11,990	11,988	12,368	12,293	12,002
1927	12,246	12,485	12,775	12,474	12,005	11,912	11,769	12,111	12,737	12,438	12,608	12,100
1928	12,480	12,634	12,782	12,729	12,916	12,238	12,270	12,436	12,439	13,607	13,406	12,644
1929	12,785	12,942	12,968	13,086	12,820	12,437	12,432	12,684	13,053	13,495	13,433	12,980
1930	13,256	13,571	13,648	13,646	13,119	13,004	13,142	13,097	13,346	13,543	13,487	12,860
1931	12,961	13,277	13,201	13,268	13,821	12,842	12,993	12,162	12,568	12,208	12,724	12,065
1932	12,203	12,543	12,543	12,724	12,288	12,534	12,571	12,717	12,771	12,612	12,093	11,862

Computed from data in National Cooperative Milk Producers' Federation, History Series No. 7. "Twin City Milk Producers' Association." Appendix Table IV.

1/ Adjusted to 30-day month.

Table 23. Retail prices of milk per quart  
in Twin Cities, 1924-1932.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	: : : : : : : : : : : : : :											
	: Cents: Cents: Cents: Cents: Cents: Cents: Cents: Cents: Cents: Cents: Cents: Cents:											
1924	: 11-12: 11-12: 11-12: 10: 10: 10: 10: 11: 11: 11: 11: 11:											
1925	: 11: 11: 11: 11: 11: 11: 11: 11: 12: 12: 12: 12:											
1926	: 11-12: 11: 11: 11: 11: 11: 11: 11: 11: 11: 11: 11:											
1927	: 10-11: 11: 11: 11: 11: 11: 11: 11: 11-12: 12: 12: 12:											
1928	: 12: 12: 12: 12: 12: 12: 12: 12: 12: 12: 12: 12:											
1929	: 12: 12: 12: 12: 12: 12: 12: 12: 12: 12: 12: 12:											
1930	: 11: 11: 11: 11: 11: 11: 11: 11: 11: 11: 11: 11:											
1931	: 10: 10: 10: 10: 10: 10: 10: 10: 10: 10: 10: 10:											
1932	: 9-10: 3-10: 8-9: 8-9: 8-9: 8-9: 8-9: 8: 8: 8: 8: 8:											
Data supplied by Twin City Milk Producers' Association.												

1/ In the discussion in the text of this paper the reported change in price during December 1926 and January 1927 was not considered. The Bureau of Labor Statistics reported no change in the price for these months for St. Paul and no change occurred in prices paid to producers.



Table 24. Sales and retail prices of fluid milk in the Boston Sales Area.

Year and month	Class I : sales of milk	Milk reported : as percent of estimated total sales	Estimated : Class I sales	Estimated : average daily Class I sales	Retail : delivered price per quart	Retail : store price per quart	Class I : price per cwt. of 3.7% milk f.o.b. City
	000 lbs.	Percent	000 lbs.	000 lbs.	Cents	Cents	Dollars
1934							
April	41,349	89.5	46,190	1,540	11	10	2.95
May	44,599	89.0	50,111	1,616	11	10	2.95
June	43,632	89.5	48,751	1,625	11	10	2.95
July	48,117	89.5	53,762	1,734	11	10	2.95
August	44,735	90.0	49,706	1,603	11	10	2.95
September	42,847	90.0	47,608	1,587	11	10	2.95
October	44,729	90.0	49,699	1,603	12	11	3.26
November	43,482	88.5	49,132	1,638	12	11	3.26
December	42,698	88.0	48,520	1,565	12	11	3.26
1935							
January	43,207	88.0	49,099	1,584	12	11	3.26
February	38,231	87.0	43,944	1,569	12	11	3.30
March	42,573	86.0	49,503	1,597	13	12	3.49
April	40,122	86.0	46,653	1,555	13	12	3.49
April to September				1,618	11		
October to February				1,592	12		
% change				-1.6	+9.1		
March and April				1,576	13		
% change				-1.0	+8.3		

Sales and Class I price compiled from reports of Market Administrator.  
Retail prices compiled from reports of U. S. Department of Agriculture Market News Service.

Table 25. Sales and retail prices of fluid milk in the Detroit Sales Area.

Year and month	Milk		Daily		Class I	
	Class I	reported	Estimated	Estimated	sales	Retail
	sales	as percent	total	average	adjusted	delivered
	of milk	of esti- mated total sales	Class I sales	'daily Class I sales	for sea- sonal Var- iation <sup>1</sup>	price per quart
	000 lbs.	Percent	000 lbs.	000 lbs.	000 lbs.	Cents
1934						
April	35,448	90	39,387	1,313	1,275	10
May	37,853	98	38,626	1,246	1,217	10
June	35,957	99	36,320	1,211	1,172	10
July	35,496	98	36,220	1,168	1,180	11
August	34,344	98	35,045	1,130	1,137	11
September	33,731	97	34,774	1,159	1,175	11
October	34,776	98	35,486	1,145	1,128	11
November	33,419	98	34,101	1,170	1,195	11
December	33,671	98	34,358	1,108	1,143	11
1935						
January	34,804	95	36,636	1,182	1,231	11
February	31,948	98	32,600	1,141	1,146	11
March	35,868	98	36,600	1,181	1,153	12
April to June				1,257	1,221	10
July to February				1,150	1,167	11
% change				-8.5	-4.4	+10.0
March				1,181	1,153	12
% change				+2.7	-1.2	+9.1

Sales and Class I price: Compiled from reports of Market Administrator.

Retail prices: Compiled from reports of the United States Department of Agriculture Market News Service.

<sup>1</sup>/ See test for index used.

Table 26. Sales and retail prices of fluid milk  
in the Evansville Sales Area.

Year and month	: :Class I :sales of :butter- :fat : :	:Milk re- :ported as :percent of :estimated :total :sales :	: :Estimated :Class I :sales of :butterfat : :	:Estimated :average :daily :Class I :sales of :milk :equivalent: :	:Retail: :deliv- :ered :price :per :quart : :	:Retail: :store :price :per :quart : :	:Class I :price per :pound :butterfat :f.o.b. :city : :
	: :Pounds :	: :Percent :	: :Pounds :	: :Pounds :	: :Cents :	: :Cents :	: :Cents :
1934	:	:	:	:	:	:	:
March	: 55,017	: 90	: 61,130	: 51,893	: 8.32	: 8.2	: 48
April	: 47,589	: 90	: 52,877	: 46,383	:	: 9	: 48
May	: 46,979	: 87	: 53,999	: 45,840	: 9	:	: 48
June	: 46,210	: 85	: 54,365	: 47,689	: 9	: 8-9	: 48
July	: 47,767	: 95	: 50,281	: 42,683	: 9	: 8-9	: 48
August	: 45,008	: 90	: 50,009	: 42,452	: 9	: 8-9	: 48
September	: 40,557	: 88.6	: 45,775	: 40,154	: 9	: 8-9	: 48
October	: 42,407	: 87	: 48,744	: 41,404	: 9.5	: 9-10	: 48
November	: 41,153	: 89	: 46,239	: 40,561	: 9.5	: 9-10	: 51.5
December	: 41,184	: 88	: 46,800	: 39,728	: 9.5	: 9-10	: 53
1935	:	:	:	:	:	:	:
January	: 43,351	: 90	: 48,168	: 40,890	: 9.5	: 9-10	: 53
February	: 40,059	: 88	: 45,522	: 42,784	: 9.5	: 9-10	: 53
March	: 45,090	: 89	: 50,663	: 44,441	: 9.5	: 9-10	: 53
May to Sept.	:	:	:	: 45,764	: 9	:	:
Oct. to Mar.	:	:	:	: 41,635	: 9.5	:	:
Percent change	:	:	:	: -4.9	: + 5.6	:	:

NOTE: Percentage changes from March sales and prices were not calculated since sales during that month appear to have been unduly high.

Sales and Class I prices: Compiled from reports of Market Administrator.  
Retail prices: Compiled from reports of the United States Department of  
Agriculture Market News Service.



Table 27. - Sales and retail prices of fluid milk in the Grand Rapids Sales Area.

Year and month:	Class I sales of milk	Milk report--			Estimated Retail			Retail:		
		Class I	ed as per-	total	average : daily	delivered: price	store : price	Class I	price per	Class I
			cent of es-	Class I Sales	Class I : Class I	per : quart	per : quart		cwt. of	
			timated to-	Class I Sales	Class I : Class I	per : quart	per : quart		3.5% milk	
			tal Class I	Class I Sales	Class I : Class I	per : quart	per : quart		f.o.b.	
			Percent	Pounds	Pounds	Cents	Cents	Dollars		
1934										
August		3,850,687	97.9	3,933,286	126,880	9	9.0		1.85	
September		3,809,520	99.7	3,820,983	127,366	9	9.5		1.85	
October		3,920,693	99.0	3,960,296	127,751	10	10.0		1.85	
November		3,758,861	99.0	3,796,829	126,561	10	10.0		2.10	
December		3,848,021	99.6	3,863,475	124,628	10	10.0		2.10	
1935										
January		3,906,824	99.0	3,946,287	127,300	10	10.0		2.10	
February		3,575,805	99.0	3,611,924	128,997	10	10.0		2.10	
March		3,928,662	99.0	3,968,345	128,011	10	10.0		2.10	
August & September										
October to:					127,123	9				
March					127,208	10				
% Change						+ 11.1				

Sales and Class I price compiled from Reports of Market Administrator.  
 Retail prices compiled from reports of U. S. Department of Agriculture Market News Service

Table 28. Sales and retail prices of fluid milk  
in the Kalamazoo Sales Area

Year and month	:Class I :Sales of :Milk	:Milk re- :ported as: :percent :of estima- :ted total: :Class I :Sales	:Estimated :total :Class I :Sales	:Estima: :ted av: :erage :daily	:Retail :deliv- :ered :and :store :prices :per qt.:	:Class I :price per :cwt. of :3.5% milk :f.o.b. :City
	<u>:Pounds</u>	<u>:Percent</u>	<u>:Pounds</u>	<u>:Pounds</u>	<u>:Cents</u>	<u>: Dollars</u>
1934						
July	: 1,236,034:	98	:1,261,259	:40,686:	10	: 1.85
August	: 1,053,642:	98	:1,075,145	:34,682:	10	: 1.85
Sept.	: 1,043,354:	98	:1,064,647	:35,488:	10	: 1.85
October:	1,078,968:	98	:1,100,987	:35,516:	10	: 1.85
November	1,062,866:	95	:1,118,806	:37,294:	10	: 1.85
December	1,145,373:	95	:1,205,656	:38,892:	8	: 1.85
1935						
January	: 1,211,198:	97	:1,274,945	:41,127:	8	: 1.85
February:	1,144,550:	98	:1,179,948	:42,141:	8	: 1.85
March	: 1,196,868:	95	:1,221,294	:39,397:	10	: 2.00
July to	:	:	:	:	:	:
November:	:	:	:	:36,733:	10	:
December:	:	:	:	:	:	:
to Feb.:	:	:	:	:40,720:	8	:
%Change	:	:	:	:+ 10.9:	-20.0	:
March	:	:	:	:	:	:
% Change:	:	:	:	:39,397:	10	:
				: -3.2:	+ 25.0	:

Sales and Class I Prices compiled from reports of Market Administrator.  
Retail prices compiled from reports of U. S. Department of Agriculture Market News Service.



Table 29. Sales and retail prices of fluid milk in the St. Louis Sales Area.

Year and month	:Class I sales of milk	:Milk re-ported as percent of estimated total Class I sales	:Estimated total Class I sales	:Estimated average daily Class I sales	:Index of average daily Class I sales	:Retail delivered price per quart	:Class I price per cwt. of 3.5% milk f.o.b. city
	: 000 Lbs.	: Percent	: 000 Lbs.	: 000 Lbs.	: Per-cent	: Cents	: Dollars
<u>1934</u>							
April	: 16,824	: 99.8	: 16,858	: 562	: 102	: 11	: 1.85
May	: 18,091	: 100.0	: 18,091	: 584	: 106	: 11	: 1.85
June	: 17,928	: 100.0	: 17,928	: 598	: 109	: 11	: 2.00
July	: 18,229	: 99.7	: 18,284	: 590	: 107	: 11	: 2.00
August	: 17,482	: 99.8	: 17,517	: 565	: 102	: 11	: 2.20
September	: 16,167	: 99.7	: 16,216	: 541	: 98	: 11	: 2.35
October	: 16,923	: 99.5	: 17,008	: 549	: 99	: 11	: 2.35
November	: 15,676	: 97.9	: 16,012	: 534	: 97	: 11	: 2.18
December	: 15,769	: 99.8	: 15,801	: 510	: 92	: 11	: 2.00
<u>1935</u>							
January	: 15,952	: 99.6	: 16,016	: 517	: 94	: 11	: 2.00
February	: 14,709	: 99.5	: 14,783	: 528	: 96	: 11	: 2.00
March	: 16,783	: 99.9	: 16,800	: 542	: 98	: 11	: 2.22
Average				: 552	: 100		

Sales and Class I prices: Compiled from Reports of Market Administrator.

Retail prices: Compiled from reports of the United States Department of Agriculture Market News Service.



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